ONEIDA COUNTY

ALL HAZARDS MITIGATION PLAN

Prepared By:
Oneida County Emergency Management
North Central Wisconsin Regional Planning Commission

Oneida County Emergency Management
Director: Ken Kortenhof
July 2004
Revised August 10, 2005

Table of Contents

Table of Contents

Table of Contents

Introduction

Part I of the Oneida County All Hazard Mitigation Plan describes and documents the process used to develop the plan. This includes how it was prepared and who (committee, organizations, departments, staff, etc.) was involved in the planning process. It also describes the local governments involvement, the time period in which the plan was prepared, and who to contact to answer questions and make recommendations for future amendments to the plan.

Disaster Mitigation Act of 2000

The development of the Oneida County All Hazard Plan is a response to the passage of the Disaster Mitigation Act of 2000 (DMA2K). On October 30, 2000, DMA2K was signed into law by the U.S. President in an attempt to stem the losses from disasters, reduce future public and private expenditures, and to speed up response to and recovery from disasters. This act (Public Law 106-390) amended the Robert T. Stafford Relief and Emergency Assistance Act. The following is a summary of the parts of DMA2K that pertain to local governments:

- The act establishes a new requirement for local governments to prepare an All-Hazards Mitigation Plan in order to be eligible for funding from FEMA through the Pre-Disaster Mitigation Assistance Program and Hazard Mitigation Grant Program.

- The act establishes a requirement that natural hazards such as tornados, floods, and wildfires, need to be addressed in the risk assessment and vulnerability analysis parts of the All Hazard Mitigation Plan.

- The Act authorizes up to seven percent of Hazard Mitigation Grant Program funds available to a state after a federal disaster to be used for development of state, local, and tribal organization All Hazard Mitigation Plans.

- The Act establishes November 1, 2003 for the Pre-Disaster Mitigation program and November 1, 2004 as the date by which local governments and tribal organizations are to prepare and adopt their respective plans in order to be eligible for the FEMA Hazard Mitigation Grant Program.

- If a plan is not prepared and adopted by November 1, 2004, and a major disaster is declared, in order for a local government or tribal organization to receive funding through the Hazard Mitigation Grant program, they must agree to prepare an All Hazards Mitigation Plan within one year.

- In addition, by not having an All Hazard Mitigation Plan, local governments and tribal organizations cannot utilize funding through the Pre-Disaster Mitigation Grant Program.

Five Parts of All Hazard Mitigation Plan

The Oneida County All-Hazards Mitigation Plan was categorized into five parts in order to address FEMA's local mitigation plan requirements. The five parts are as follows:

Part I:	Planning Process
Part II:	Planning Area
Part III:	Risk Assessment
Part IV:	Mitigation Strategy
Part V:	Plan Mitigation Process and Adoption

Local Emergency Planning Committee

The Oneida County All Hazard Mitigation Plan was prepared under the guidance of the Oneida County Local Emergency Planning Committee (LEPC). Periodically meetings were held by LEPC to provide input on the types of hazards to be considered, appropriate mitigation strategies, and to review draft reports. Committee members are as follows:

Table 1 Local Emergency Planning Committee

Committee Member Name	Representing Agency
Brian Gehrig, Chairperson	Owner / Operator Facilities
Clarence Puza, Vice Chairperson	County HazMat Team
Ken Kortenhof	County Emergency Management
Dan Meyer	State Elected Official
Vern Semling	Local Elected Official
Glenn Parmeter	Law Enforcement
Don Knutson	Fire Service
Denise Counter	Hospital/Public Sector
Kevin Schlosser	Hospital
Bob Maass	Transportation
Linda Conlon	Public Health
Daryl Youngstrum	Media
Clay Hammes	Owner/Operator Facilities

Involvement From Local Governments

There were a number of opportunities for the local units of government to become involved in the planning process. On February 19, 2004, the planning process was formally introduced at a Towns Association Meeting at the Pine Lake Town Hall. North Central Wisconsin Regional Planning Commission gave a

presentation describing the planning process and the hazards that were identified in the plan. Time was provided at the end of the presentation to take comments and suggestions from the audience.

The municipalities who were not represented at the Towns Association Meeting were sent an information questionnaire regarding their municipality. A meeting was conducted with the City of Rhinelander officials on May 25, 2004. An additional meeting was held with the Town of Minocqua officials on May 20, 2004.

An additional opportunity for input was provided on June 21, 2004 during a public informational meeting.

Many of these comments and suggestions were incorporated into the planning document.

Neighboring Community Involvement

One of the requirements of the planning process was to include neighboring communities. Counties surrounding Oneida County include: Forest, Vilas, Langlade, Lincoln and Price. Each surrounding county through their respective Emergency Management Director's was given an opportunity to discuss the All Hazard Planning Process. Meetings and telephone conversations were arranged to meet this requirement.

At this point Oneida County is the only County currently working on an All-Hazards Mitigation Plan. Future plans of Forest, Langlade, and Lincoln Counties include the development of an All Hazards Mitigation Plan with the assistance of North Central Wisconsin Regional Planning Commission. Vilas County will develop a plan when grant money becomes available.

As a result of the meetings and telephone conversations ideas were exchanged about the All Hazards Mitigation planning process.

Table 2 Neighboring Community Meeting/Telephone Schedule	
Langlade County, Meeting	April13, 2004
Forest County, Telephone	April 14, 2004
Vilas County, Telephone	July 14, 2004
Price County, Telephone	July 15, 2004
Lincoln County, Telephone	July 15, 2004

Local and Regional Agency Involvement

Another requirement of the planning process was to involve local and regional agencies in hazard mitigation activities, and agencies that have the authority to regulate development, as well as business, academia, and other private and non-

private interests. Meetings and phone interviews with county department staff, government agencies, and private businesses were done throughout the planning process. The following is a list of participants:

County Planning and Zoning Dept.
North Central Wisconsin Regional Planning Commission
County Buildings & Grounds Dept.
Nicolet Technical College
Northwoods Association of Realtors
U.S. Bureau of Census
Rhinelander Paper Mill
Dept. of Workforce Development
County Forestry Dept.
County Economic Development Dept.
University of Wisconsin-Extension
Local Emergency Planning Committee
County Land Information Dept.
Wis. Dept. of Natural Resources
Federal Emergency Response Agency
Ripco Credit Union
Wisconsin Public Service
Wisconsin Emergency Management
City of Rhinelander
County Real Property Dept.

Public Review Process

The public was given a number of opportunities to have input into the plan and assist in its development. As part of the planning process an outline of the plan was posted on the County web site.

In addition, the public was invited to attend the Local Emergency Planning Committee (LEPC) meetings and allowed to comment on the plan. During the planning process the LEPC held six meetings, allowing public input at each meeting. Meeting agendas were posted as required with news media notified. The comments received from both the public and LEPC committee members were taken and incorporated into the County All-Hazards Plan.

On June 21st, 2004 the Oneida County Emergency Management Department held an informational meeting for the public at the County Law Enforcement Center. In addition to the public, municipality officials were also given an opportunity to provide input and request assistance with their individual information.

Incorporated Plans, Studies, Reports, and Technical Data

Many plans, reports, and technical data were referenced and incorporated into the Oneida County All Hazard Mitigation Plan. The following is a comprehensive list of the data that was used:

- Oneida County Emergency Operations Plan
- Oneida County Hazardous Material Plan (EPCRA)
- Oneida County Hazard Analysis / Mitigation
- Hazard Analysis for the State of Wisconsin
- Emergency Action Plan for Rhinelander Hydroelectric Project
- Emergency Action Plan for the Willow Reservoir

- Emergency Action Plan for the Hat Rapids Project No. 1968
- Emergency Action Plan for the Killarney Lake Dam
- Emergency Action Plan for the Rainbow Reservoir
- Adams County All Hazards Mitigation Plan
- Oneida County Zoning Ordinance
- Fire Action Plan Upper Wisconsin Dispatch Group
- Wisconsin Lakes Directory- Wisconsin DNR (online)
- Northern Highland American Legion State Forest Visitor

Participating Jurisdictions

The following jurisdiction participated in the development of the County All Hazards Mitigation Plan: Town of Crescent, Town of Enterprise, Town of Hazelhurst, Town of Lake Tomahawk, Town of Lynn, Town of Minocqua, Town of Newbold, Town of Pelican, Town of Piehl, Town of Pine Lake, Town of Sugar Camp, Town of Woodruff, and the City of Rhinelander.

Contact Information

Emergency Management Director
Oneida County Law Enforcement Center
2000 East Winnebago Street
Rhinelander, WI. 54501
715-361-5167

Introduction

Part II of the Oneida County All-Hazard Mitigation Plan provides political, geographical, and demographic information on Oneida County. This collection of data must be referenced in order to determine sound hazard mitigation strategies. The resulting information is an important element of the planning process, since sound alternative plans cannot be formulated and evaluated without an in-depth knowledge of the relevant conditions in the study area.

General Geography

Location

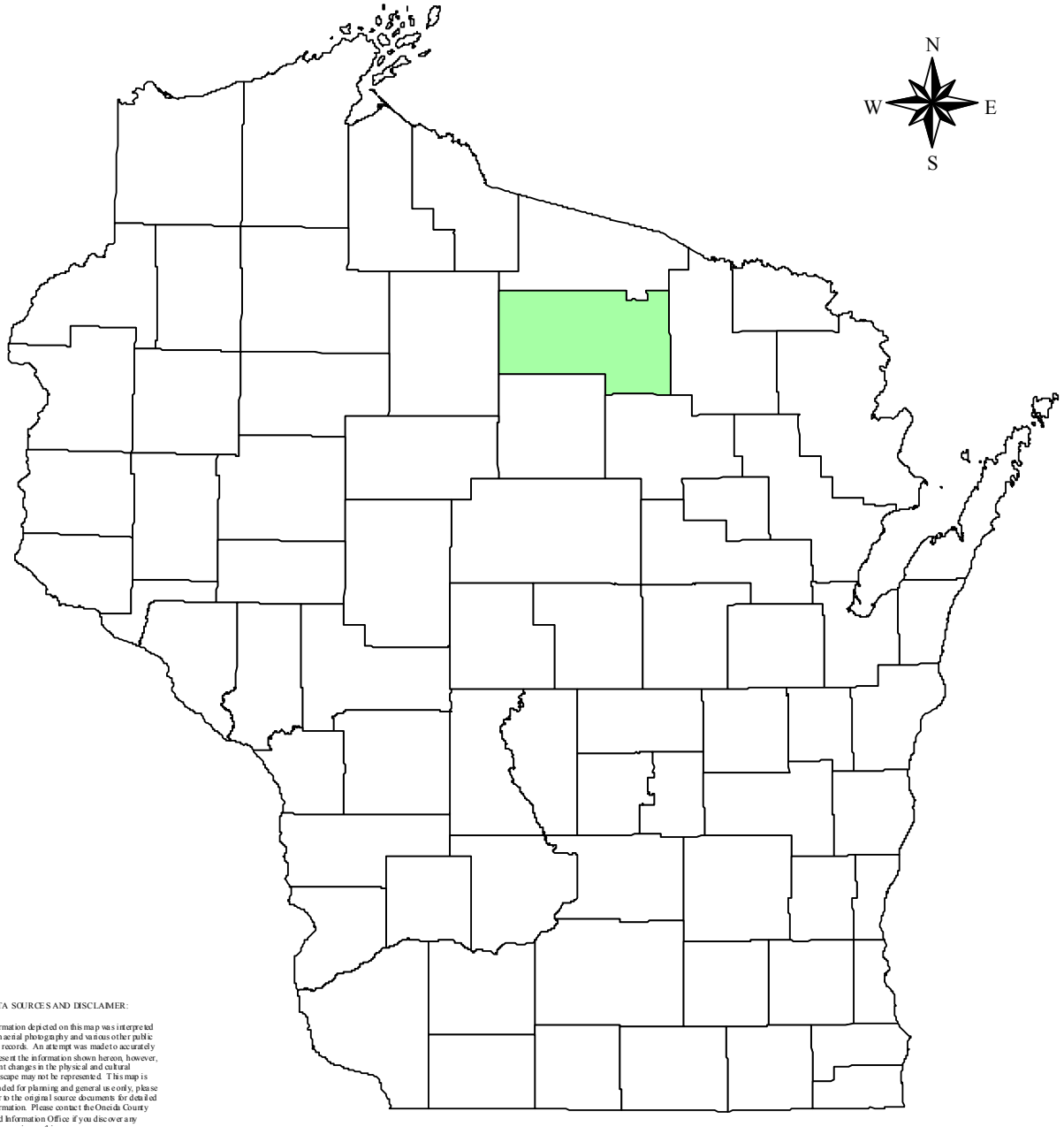
Oneida County is located in the northern portion of Wisconsin (See Map 1). The largest urban areas are the City of Rhinelander, and the Towns of Three Lakes, Minocqua, and Woodruff. Langlade and Lincoln Counties border the county on the south, Forest County borders the county on the east, Vilas County borders the county on the north, and Price County borders the county on the west. Oneida County is divided into twenty towns and one city. Oneida County lies 268 miles north of Milwaukee, 135 miles northeast of Greenbay, 60 miles north of Wausau, and 200 miles north of Madison. Major metropolitan areas outside of Wisconsin with transportation linkages to Oneida County Chicago, 340 miles southeast; Minneapolis-St. Paul, 242 miles southwest; and Duluth 200 miles, northwest.

Civil Divisions

There are 21 municipalities (20 towns and the city of Rhinelander) in Oneida County and the planning area. These units of government provide the basic structure of the decision-making framework. The County has a total surface area of approximately 1,235 square miles, of which approximately 10% is water. The area and proportion of the County within each civil division are presented in Table 3.

Map 1
Location Map

Oneida County, Wisconsin



DATA SOURCES AND DISCLAIMER:

Information depicted on this map was interpreted from aerial photography and various other public land records. An attempt was made to accurately represent the information shown hereon, however, recent changes in the physical and cultural landscape may not be represented. This map is intended for planning and general use only, please refer to the original source documents for detailed information. Please contact the Oneida County Land Information Office if you discover any discrepancies on this map.

Planimetric information shown hereon was generated from 1:20000 scale photography taken in 1989 to meet National Map Accuracy Standards of 1"=400'. It is recommended that features and measurements be field verified.

Source: Oneida County Land Information Database

Prepared By:
Oneida County Emergency Management

Table 3	Geographical Size by Civil Division			
	Area in Square Miles			
Municipality	**Water Area**	**Land Area**	**Total Area**	**Area as % of County**
Cassian	3.36	64.99	68.35	5.5%
Crescent	3.37	29.34	32.71	2.6%
Enterprise	2.24	56.69	58.92	4.8%
Hazelhurst	3.87	31.18	35.05	2.8%
Lake Tomahawk	4.90	34.31	39.21	3.2%
Little Rice	5.56	68.11	73.67	6.0%
Lynn	1.50	70.50	72.00	5.8%
Minocqua	17.29	150.80	168.09	13.6%
Monico	.46	54.10	54.56	4.4%
Newbold	13.94	79.06	93.0	7.5%
Nokomis	3.61	33.39	37.0	3.0%
Pelican	2.70	51.45	54.15	4.4%
Piehl	.59	37.39	37.98	3.1%
Pine Lake	4.41	40.60	45.01	3.6%
Schoepke	4.53	46.05	50.58	4.1%
Stella	1.96	35.32	37.29	3.0%
Sugar Camp	9.15	88.87	98.02	7.9%
Three Lakes	18.38	81.50	99.88	8.1%
Woodboro	2.36	34.59	36.95	3.0%
Woodruff	7.04	28.53	35.57	2.9%
City of Rhinelander	.17	7.72	7.88	.64%
Oneida County	**111.38**	**1,124.5**	**1235.88**	**100%**

Source: U.S. Bureau of Census

Demographic and Economic Profile

Population and Households

The most recent population estimates by the U.S. Census Bureau is for 2002, which estimates a population of 36,860 people for the County. The 2000 Census reported a population base of 36,776 people. This figure represents about .01% of the states total population in 2000. Approximately 26% of the population is urban residents and 74% are rural. Since 1990, the population of Oneida County has increased by approximately 13.9% or by 5,097 people (Refer to Table 5). If the growth rate continued at this same level, there will be approximately 38,284 people in Oneida County in 2010 and 39,254 people in 2020.

Table 4	Population of Adjacent Counties			
County	**1990**	**2000**	**Number Change**	**% Change**
Forest	8,776	10,024	1,248	12.5%
Vilas	17,707	21,033	3,326	16%
Langlade	19,505	20,740	1,235	6%
Lincoln	26,993	29,641	2,648	8.9%
Price	15,600	15,822	222	1.4%
Wisconsin	4,891,769	5,363,675	471,906	9.6%

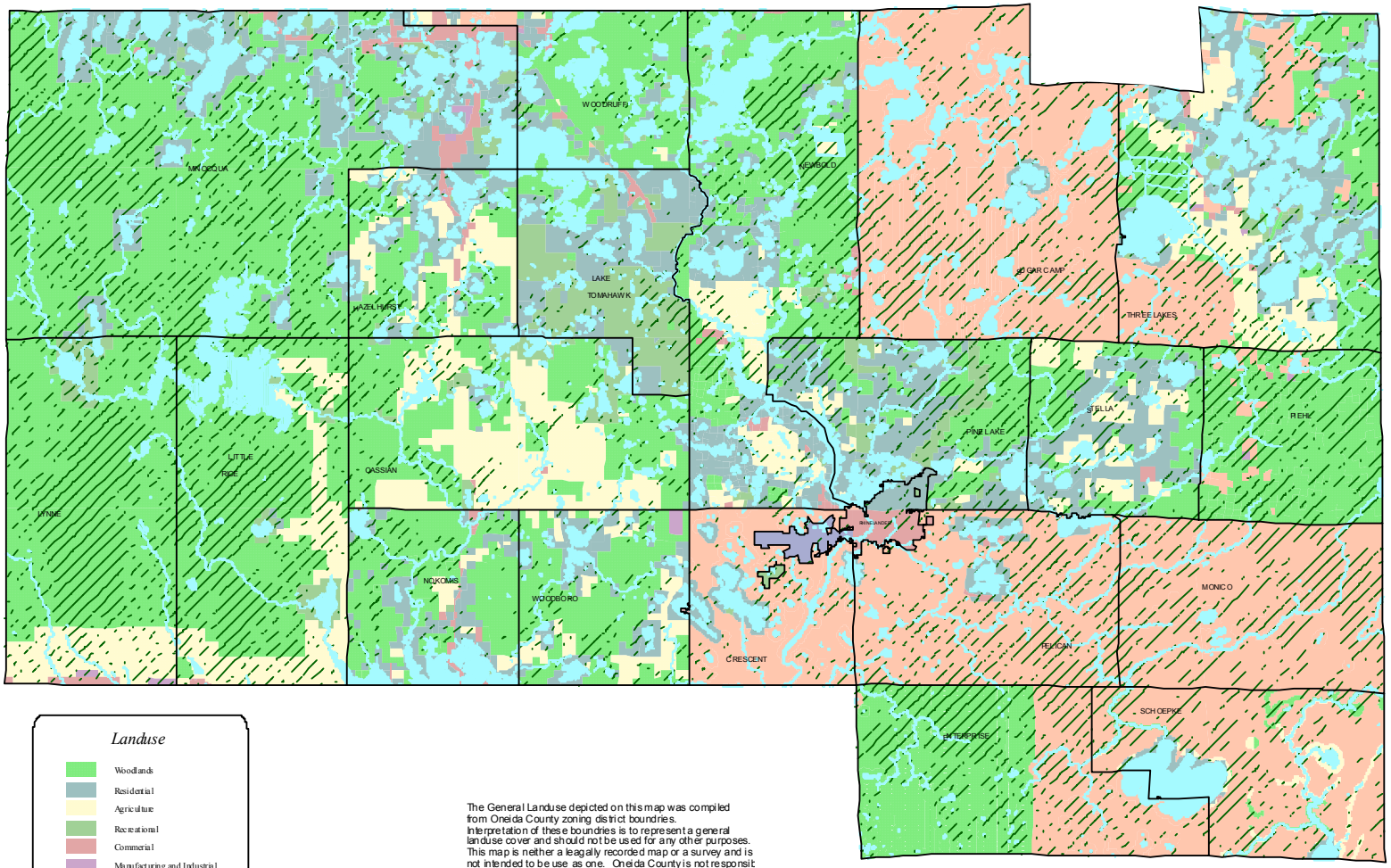
Source: U.S. Bureau of Census

Population concentrations and trends are important when prioritizing hazard mitigation strategies. The City of Rhinelander is one of the most densely populated and developed areas in the County. Other areas of population concentrations include the towns of Minocqua, Woodruff, and Three Lakes. Map 2 (Land Use) shows areas of population concentrations in the County.

Between 1990 and 2000, all communities within Oneida County have experiences an increase in their population base (refer to Table 5).

Table 5	Population and Household Size of Civil Divisions					
Minor Civil Divisions	**1990 Population**	**1990 Households**	**2000 Population**	**2000 Households**	**%90-00 Population**	**%90-00 Households**
Cassian	668	264	962	1011	30.6%	73.9%
Crescent	1794	681	2071	1034	13.4%	34.1%
Enterprise	277	111	274	386	1.1%	71.2%
Hazelhurst	927	340	1267	1113	26.8%	69.5%
L. Tomahawk	851	327	1160	1052	26.6%	69%
Little Rice	196	85	314	435	37.6%	80.5%
Lynn	157	77	210	298	25.2%	74.2%
Minocqua	3486	1517	4859	4284	28.3%	64.6%
Monico	294	103	364	216	19.2%	52.3%
Newbold	2281	870	2710	2074	15.8%	58.1%
Nokomis	999	411	1363	1013	26.7%	59.4%
Pelican	3198	1215	2902	1532	10.2%	21%
Piehl	66	25	93	85	29%	71%
Pine Lake	2494	914	2720	1281	8.3%	34%
Schoepke	378	157	352	626	7.4%	75%
Stella	525	209	633	316	17.1%	34%
Sugar Camp	1376	521	1781	1326	22.7%	61%
Three Lakes	2003	856	2339	2908	14.4%	71%
Woodboro	699	253	685	592	2%	57.3%
Woodruff	1634	669	1982	1515	17.6%	56%
Rhinelander	7382	3040	7735	3430	4.6%	52.5%
Oneida CTY	**31,679**	**12,645**	**36,776**	**26,627**	**13.9%**	**52.5%**

Map 2
General Land Use
Oneida County, Wisconsin



Landuse

- Woodlands
- Residential
- Agriculture
- Recreational
- Commerial
- Manufacturing and Industrial
- General Use
- Residential and Retail
- See Zoning Document
- Not Zoned
- Clymun
- Wetlands Overlay

The General Landuse depicted on this map was compiled from Oneida County zoning district boundries. Interpretation of these boundries is to represent a general landuse cover and should not be used for any other purposes. This map is neither a leagally recorded map or a survey and is not intended to be use as one. Oneida County is not responsit for any inaccuracies here in contained.

N
W E
S

Oneida County Emergency Management

Employment

Employment throughout Oneida County is diverse, demonstrating the skills of a motivated workforce. Representing over 27% of the workforce, retail is the principal employer, a reflection of a strong tourism trade. Manufacturing employ about 16% of the labor force, with paper and metal fabrication companies the key elements of the economic base. Flexible packaging and wood products firms are also important. Health care, including hospitals in Rhinelander and Woodruff, employ about 18% of the labor force. These acute care hospitals offer general, pediatric and intensive care services, supported by two clinics with a full range of specialists. Long-term health care, home care and rehabilitative services are also available.

Identifying the locations of the large employment is important when prioritizing hazard mitigation strategies. Table 6 represents the top ten employers in Oneida County and their locations.

Table 6	**Top employers in Oneida County**		
Company	**Product or Service**	**Size**	**Location**
Foster and Smith	Retail-Mail Order	700	Rhinelander
Saint Mary's Hospital	Health Care	654	Rhinelander
Rhinelander Paper Mill	Manufacturing	582	Rhinelander
Wal-Mart	Retail	576	Rhinelander Minocqua
Peterson Health Care	Health Care	550	Various Locations
Public School Districts	Education	456	Various Locations
Ministry Health Care	Health Care	328	Rhinelander Woodruff
Print Pack	Manufacturing	175	Rhinelander
Menards	Retail	175	Rhinelander
Home Depot	Retail	94	Rhinelander

Source: Dept. of Workforce Development

Land Values

The value of real estate and personal property in the community reflects the upper end of the potential for property damages in each community. The annual equalized value of each municipality represents the Department of Revenue estimate of market value of all taxable property. Property tax levies of jurisdictions are apportioned to each municipality on the basis of equalized value. Table 7 lists each municipality's total equalized values for real estate, personal property, and all property and the percentage each municipality represents of the county total.

Table 7	Equalized Value by Civil Division			
District	**Real Estate**	**Personal Property**	**Total**	**Percent of Total**
Cassian	$170,209,100	$637,500	$170,864,600	3.5%
Crescent	$201,951,200	$1,687,100	$203,638,300	4.2%
Enterprise	$66,140,400	$1,678,400	$67,818,800	1.4%
Hazelhurst	$248,307,000	$996,600	$249,303,600	5.2%
Lake Tomahawk	$157,978,500	$1,172,800	$159,151,300	3.3%
Little Rice	$38,634,000	$820,600	$39,454,600	.8%
Lynn	$22,552,600	$194,500	$22,747,100	.5%
Minocqua	$1,054,509,700	$26,082,200	$1,080,591,900	22.4%
Monico	$22,219,400	$708,600	$22,928,000	.5%
Newbold	$373,808,600	$2,340,500	$376,149,100	7.8%
Nokomis	$163,193,200	$957,600	$164,150,800	3.4%
Pelican	$225,156,800	$10,568,200	$235,725,000	4.9%
Piehl	$10,973,400	$44,000	$11,017,400	.2%
Pine Lake	$219,070,800	$1,967,600	$221,038,400	4.6%
Schoepke	$80,593,700	$2,506,900	$83,100,600	1.7%
Stella	$59,862,200	$2,132,900	$61,995,100	1.3%
Sugar Camp	$266,646,300	$2,027,500	$268,673,800	5.6%
Three Lakes	$568,433,900	$4,483,900	$572,917,800	11.9%
Woodboro	$113,744,700	$125,100	$113,869,800	2.4%
Woodruff	$215,381,600	$5,113,700	$220,495,300	4.6%
Rhinelander	$431,231,200	$43,942,00	$475,173,200	9.8%
Oneida County	**$4,710,598,300**	**$110,188,200**	**$4,820,786,500**	**100%**

Source: Department of Revenue (2003 equalized Value Figures)

Land Use/Land Cover and Development Patterns

Land use is an important determinant in the potential impact a particular hazard may have, and in action, which may be taken to mitigate the hazard impacts. An understanding of the amount, type, and spatial distribution of urban and rural land uses within the County is an important consideration in the development of a sound hazard mitigation plan.

Oneida County Emergency Management has categorized land use in Oneida County into ten classifications. Aerial photos were used to digitize a land use Geographic Information System (GIS) coverage. Map 2 shows the land use and surface water in Oneida County. Table 8 shows the acreage and percent of each classification.

Forestry and Agriculture

The forests are Oneida County's major resource accounting for approximately 80% of the county's land area, 95% of which is commercial forest. Approximately 558,000 acres of woodland exists in Oneida County. Agriculture

land covers an additional 1,800 acres. The main agriculture practices in the county are potatoes and cranberries.

Residential Development

Land in residential development makes up 16 percent of the total county area. Residential concentrations are scattered throughout the county (see "Population and Households in Table 5). Much of the scattered rural development is related to direct recreational demand as various types of housing have clustered along streams and lakes.

There are a number of mobile home parks in the county. According to the U.S. Census and the City of Rhinelander there were 1,058 mobile homes in 2000. This is significant due to their vulnerability in natural hazards especially tornados. Map 9 displays the mobile home concentrations within the County.

Commercial and Industrial Development

Commercial and industrial development makes up less the 2 percent of the total area of the County. Land use for commercial and industrial development is also scattered throughout the county. There is one designated industrial park located in the City of Rhinelander. The largest industrial facility that uses hazardous chemicals is the Wausau-Mosinee Paper Mill. This facility is located in the City of Rhinelander but not in the designated Industrial Park. Printpack, another large industrial facility is also located in the City of Rhinelander outside the Industrial Park.

Commercial activity is located in the City of Rhinelander, the Towns of Minocqua, Woodruff, and Three Lakes. Commercial activity in the other unincorporated areas is primarily dominated by private commercial recreation.

Table 8	**Land Use in Oneida County**	
Description	**Acres**	**Percent**
Woodlands	332,859	38%
Residential	139,449	16%
Agriculture	73,251	8%
Recreational	32,456	4%
Commercial	10,787	1%
Manufacture/Industrial	1,000	>1%
General Use	199,990	23%
Residential and Retail	1,589	>1%
Water	79,139	10%

Source: Oneida County Emergency Management/Land Information/Zoning

Transportation

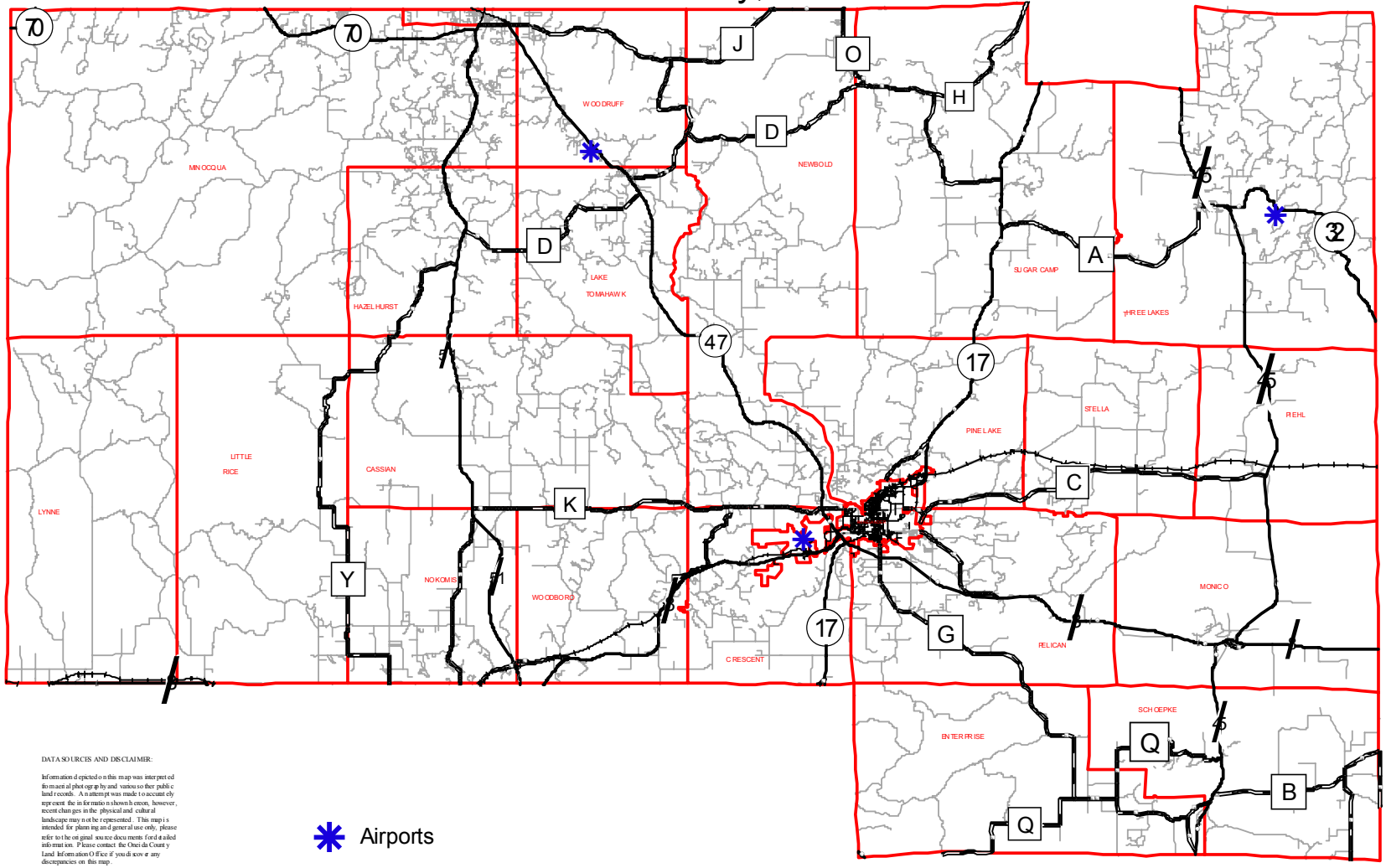
The transportation system of Oneida County provides the basis for movement of goods and people into, out of, through, and within the County. An efficient transportation system is essential to a sound social and economic development of the County and the Region. The analysis of transportation routes should be considered in the possible event of a major accident or spill of hazardous materials.

Highways link Oneida County with some of Wisconsin's major cities including: Wausau, Stevens Point, Portage, Madison, Milwaukee, and Green Bay. They are arteries which feed Oneida County it's workforce, visitors, goods, and resources. Map 3 shows Oneida County's transportation system. Four state highways 17, 32, 70, and 47 serve the County. Highway 17 runs north to south through the middle of the County. Highway 32 runs east to west through the northeastern corner of the County. Highway 70 runs east to west through the northeastern part of the County. Highway 47 runs north to south through the western portion of the County. Three Federal Highways 51, 8, and 45 serve the County. Highway 51 runs north to south through the western portion of the County. Highway 8 runs east to west through the southern portion of the County. Highway 45 runs north to south through the eastern portion of the County. The county also maintains an additional 172 miles of its own highway system. In addition to the State and County highway system, there are approximately 1,200 miles of town roads.

The Canadian National Railroad also serves Oneida County. Although trucks transport most of the hazardous materials in the state and the U.S., rail can carry significantly larger and various loads. The Canadian National railroad has approximately 41 miles of track that runs primarily east to west through the southern portion of the County.

The Rhinelander-Oneida County Airport is located approximately two miles west of the City of Rhinelander. This is the largest airport in the County. The Rhinelander-Oneida County Airport provides commercial service through Mesaba Airlines and Northwest Airlink. In addition, the County has two additional airports located in Three Lakes and Woodruff. These airports are smaller grass fields that accommodate small aircraft.

Map 3
Transportation Map
Oneida County, Wisconsin



DATA SOURCES AND DISCLAIMER:

Information depicted on this map was interpreted from aerial photography and various other public land records. An attempt was made to accurately represent the information shown hereon, however, recent changes in the physical and cultural landscape may not be represented. This map is intended for planning and general use only, please refer to the original source documents for detailed information. Please contact the Oneida County Land Information Office if you discover any discrepancies on this map.

Planimetric information shown hereon was generated from 1:24000 scale photography taken in 1989 to meet National Map Accuracy Standards of 1"=400'. It is recommended that features and measurements be field verified.

Oneida County Emergency Managment

Surface Water

Oneida County has a total surface area of approximately 790,963 acres, however, 71283 acres (9.01%) is comprised of surface water (see Map 4). The majority of this area is comprised of 426 named lakes and 701 unnamed lakes totaling 66,545 acres and 2,056 acres respectively. The largest natural lake is Lake Tomahawk at 3,627 acres and the largest artificial water body is the Willow Reservoir at 5,135 acres. The deepest lake is Clear Lake, which measures approximately 100 feet at its deepest point. The County contains 830 miles of streams, of which about 192 miles are classified as trout streams. The Three Lakes area holds the world's largest chain of freshwater lakes. While most of the County drains into the Wisconsin River, a small area in the southeast drains into the Wolf River and another small area in northwest drains through a series of river systems until ultimately the upper Mississippi River.

Oneida County contains fourteen watersheds located throughout the County. Map 4 represents the watershed boundaries. The fourteen watersheds are as follows:

- Upper South Fork Flambeau River
- Bear River
- Sugar Camp Creek
- Eagle River
- Upper Tomahawk River
- Middle Tomahawk River
- Lower Tomahawk River
- Somo River
- Rhinelander Flowage
- Pelican River
- Woodboro
- Noisy and Pine Creek
- Prairie River
- Upper Wolf River

Floodplain

The primary value of floodplains is their role in natural flood control. Floodplains represent areas where excess water can be accommodated whether through drainage by streams or through storage by wetlands and other natural detention / retention areas. Specific areas that will be inundated will depend upon the amount of water, the distance and speed that water travels, and the topography of the area. If uninterrupted by development, the areas shown on a map as floodplains should be able to handle the severest (regional) flood, i.e. those that have a probability of occurring once every one hundred years.

There is value in preserving and protecting these natural flood control areas from encroachment. First, by preventing development in the floodplain, the cost of building dikes, levies, or other man-made flood control devices will be saved. Second, for each structure that is constructed in a flood-prone area, that flood-prone area expands, potentially subjecting other structures originally built outside the delineated flood hazard area to the risk of flooding. Each new structure (or modification to existing) placed in the floodplain puts more life and property in danger.

Counties, cities, and villages are required to adopt reasonable and effective floodplain zoning ordinances. The requirement is found in Section 87.30 of the Wisconsin State Statutes and Chapter NR116 of the Wisconsin Administrative Code. Floodplain zoning is designed to protect individuals, private property, and public investments from flood damage.

Floodplain zoning maps identify area where major flooding occurs. Regulations prohibit development in the floodway, the most dangerous flood area. In other flood areas, the flood fringe, development that is built above flood levels and otherwise flood-protected is allowed if it is in accordance with local ordinances. For regulatory purposes, a floodplain is generally defined as land where there is a one percent chance of flooding in any year (also known as the 100 year floodplain).

Map 4 shows the approximate floodplains in Oneida County. Floods in Oneida County occur normally during periods of exceptionally heavy rainfall and spring thaw.

Wetlands

Wetlands perform many indispensable roles in the proper function of the hydrologic cycle and local ecological systems. In terms of hazard mitigation, they act as water storage devices in times of high water. Like sponges, wetlands are able to absorb excess water and release it back into the watershed slowly, preventing flooding and minimizing flood damage. As more impermeable surfaces are developed, this excess capacity for water runoff storage becomes increasingly important.

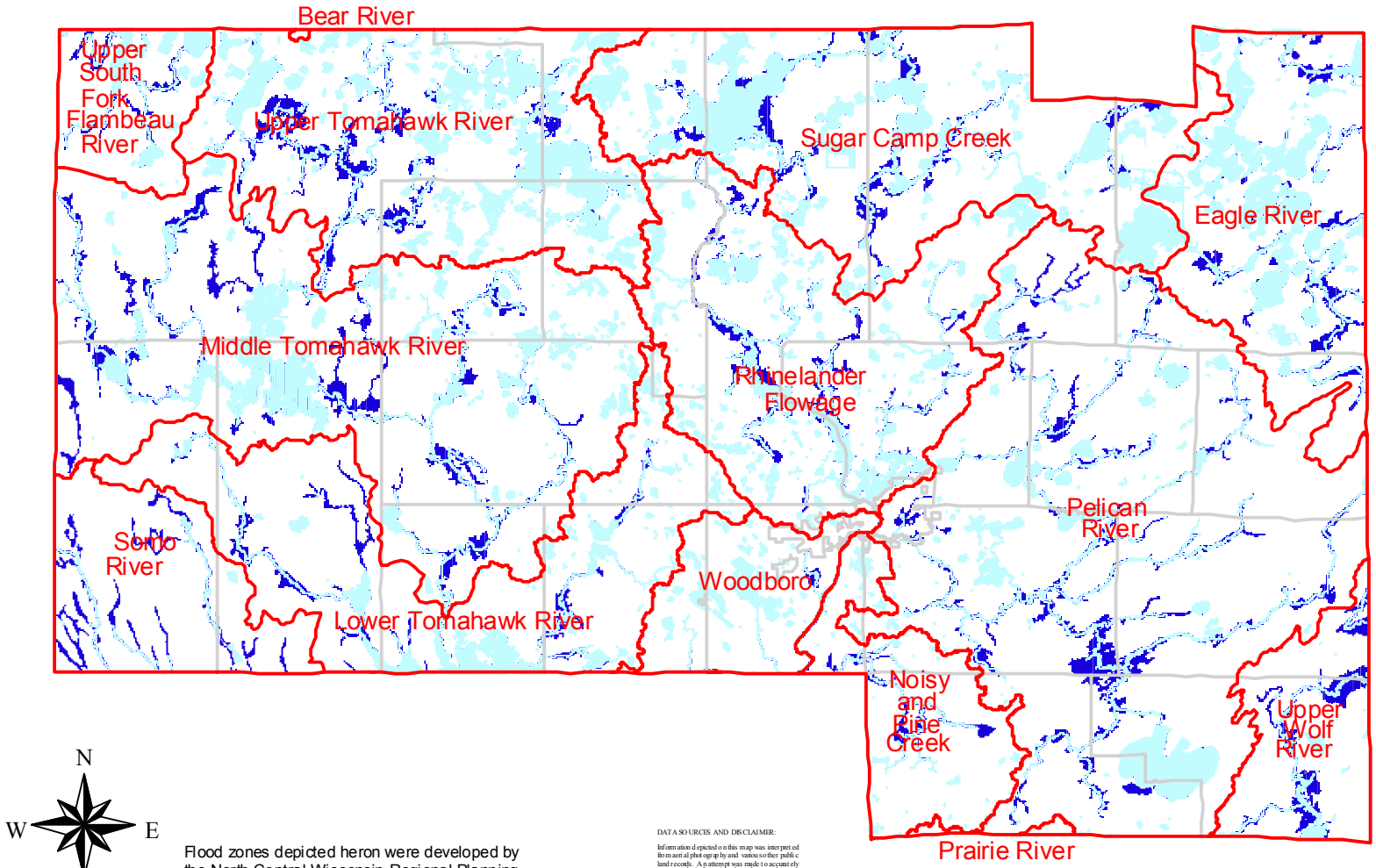
The DNR has also identified wetland locations on their WISCLAND database. According to WISCLAND, Oneida County has 237,546 acres of wetlands, or 33 percent of its total area. Map 2 shows these wetland areas in Oneida County.

Eradication of wetlands can occur through the use of fill material. This can destroy the hydrological function of the site and open the area to improper development. The Wisconsin Department of Natural Resources (DNR) has promulgated minimum standards for managing wetlands.

Map 4

Floodplains and Watershed Boundries

Oneida County, Wisconsin



Flood zones depicted heron were developed by the North Central Wisconsin Regional Planning Commission. Data source material, Flood Insurance Rate Maps (FIRM)1991, was provided by the Federal Emergency Management Agency. Descrepencies in the data and actual field conditions should be reported to FEMA

DATA SOURCES AND DISCLAIMER:

Information depicted on this map was interpreted from aerial photography and various other public land records. An attempt was made to accurately represent the information shown hereon, however, recent changes in the physical and cultural landscape may not be represented. This map is intended for planning and general use only, please refer to the original source documents for detailed information. Please contact the Oneida County Land Information Office if you discover any discrepancies on this map.

Planimetric information shown hereon was generated from 1:20000 scale photography taken in 1989 to meet National Map Accuracy Standards of 1"=400'. It is recommended that features and measurements be field verified.

Utilities

Utility systems are important in hazard mitigation planning because of the dependency on water, wastewater treatment, gas service, electricity, and communications. Because of this reliance and vulnerability to hazards, utility systems must be identified for this plan.

The protection of public water supply facilities from potential contamination from hazards such as flooding is a consideration for hazard mitigation planning. Oneida County has four municipalities that manage water and waste water services through a public system. The City of Rhinelander has a municipal water system that services approximately 3,510 customers including commercial, industrial, and residential use. This is the largest system located in the County. A portion of the Town of Minocqua is serviced by the Lakeland Sanitary District which serves approximately 1,100 customers. This service area includes the more populated areas of the town representing mostly residential and commercial use. The Lake Tomahawk Sanitary District services approximately 300 – 500 customers representing mostly residential and commercial use. The smallest system in the County is located in Three Lakes. Three Lakes Sanitary System services approximately 276 customers representing mostly residential, commercial and some industrial use.

The protection of wastewater facilities is an important consideration for hazard mitigation planning because of its potential to contaminate nearby water bodies in the event of high water. Also of concern during periods of flooding is the threat of damage to infrastructure of associated facilities.

ANR Pipeline Company provides a pipeline to move petroleum through the County. The pipeline runs 7 miles from the southern part of the County to the City of Rhinelander, and then 20 miles from the City of Rhinelander to the eastern County line with Forest County.

Wisconsin Public Service provides natural gas to the City of Rhinelander along with the following townships: Crescent, Enterprise, Hazelhurst, Lake Tomahawk, Minocqua, Monico, Newbold, Nokomis, Pelican, Schoepke, Stella, Piehl, Pine Lake, Sugar Camp, Three Lakes, Woodboro, and Woodruff.

The infrastructure of electric and telephone lines should be considered in the events of high wind, ice storms, tornados, flooding, and fire. Wisconsin Public Service and the Price County Cooperative provide Oneida County with electrical service. An independent transmission company (ATC), owns, maintains, and operates the major electric transmission facilities located in the State of Wisconsin, including Oneida County. There are seven major electrical transmission facilities located in Oneida County.

Three telephone providers, Frontier Communications, Verizon North, and CenturyTel service the County. Frontier Communications is the largest supplier, second is Verizon North and CenturyTel services a small number of residents on the south side of the County. Table 9 shows the percent and number of customers serviced by each provider.

Table # 9	Telephone Provider Information	
Name of Provider	**Number of Customers**	**Percent of County**
Frontier Communications	19,882	60%
Verizon North	13,108	39%
CenturyTel	223	1%
Total	32,213	100%

Source: 911 Telephone Contract

Emergency Services and Facilities

The type and location of public emergency services are an important consideration in hazard mitigation planning, because of the potential direct involvement of such facilities in certain hazard situations. The location of fire stations, police departments, and ambulance services in Oneida County are shown on Maps 5 through Map 7.

There are nineteen fire stations that serve the local units of governments in Oneida County. The Rhinelander Fire Department is a paid full-time fire department, while the remainder of the departments relies on volunteers for this service. Three municipalities rely completely on contracted fire service, and two additional for partial contracted services for a portion of their municipality. The following municipalities have volunteer fire departments: Cassian, Crescent, Hazelhurst, Lake Tomahawk, Little Rice, Lynn, Minocqua, Monico, Newbold, Nokomis, Pine Lake, Pelican, Sugar Camp, Stella, Schoepke (Fire Dist. Alpha), Three Lakes, and Woodruff. The location of each fire station and their service area are identified on Map 5.

Oneida County provides a countywide ambulance service. This service covers the entire county with the exception of the Town of Nokomis. The Town of Nokomis contracts separately with the City of Tomahawk for ambulance service. The Oneida County ambulance service consists of nine ambulances located throughout the County. Two full time paid staffed ambulances are located at the hospitals, one at Saint Mary's Hospital in Rhinelander, and the other at Howard Young Medical Center in Woodruff. Oneida County contracts with Saint Mary's Hospital and Howard Young Medical Center to provide EMT-Paramedic personnel to staff the ambulances. Each hospital staffs a first out ambulance at a paramedic level. Two additional ambulances are located at the hospitals, staffed by paid on-call personnel. Three outlying ambulances are located in Sugar Camp, Three Lakes, and Pelican Lake. These ambulances are staffed

with paid on call personnel funded by the individual municipality. Map 6 shows the location of each ambulance and its service area

The Oneida County Sheriff's Department provides law enforcement service to all the municipalities. The Sheriff's Department has thirty-nine officers consisting of one Sheriff, one Chief Deputy, two lieutenants, six Detective Sergeants, five road sergeants, and twenty-four Deputies. The City of Rhinelander has a sixteen-person department consisting of one Police Chief, one Captain, two Detective Sergeants, four Sergeants, and nine Patrol Officers. The Town of Minocqua has an eleven-person department consisting of a Police Chief, one Sergeant, one Detective, and eight Patrol Officers. The Town of Woodruff has an eight-person department consisting of a Police Chief and seven Patrol Officers. The Town of Three Lakes has a four-person department consisting of a Police Chief and three Patrol Officers. The locations and service areas of each department are identified on Map 7.

To coordinate these services, Oneida County has created an Emergency Operations Plan (EOP) (Updated 2003). This provides a general overview for the County and Municipal emergency response personnel during response to a number of disasters. This document is used to coordinate the County and local units of government during times of response and recovery. It also provides a link between the County and municipal plans.

Critical Community Facilities

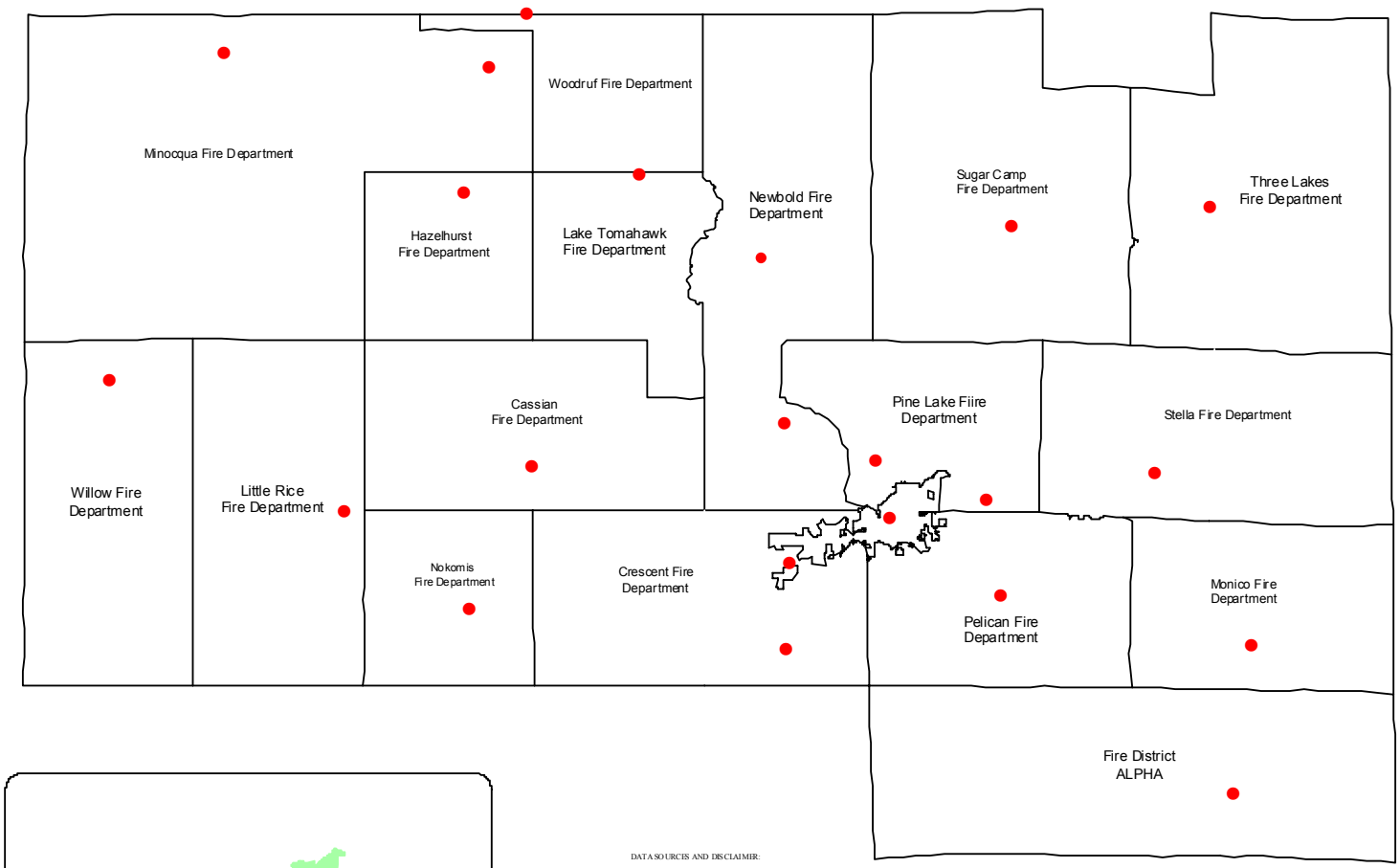
In addition to emergency service facilities, other community faculties that are of importance in hazard mitigation planning include schools, hospitals, nursing homes, and government administration buildings. Map 8 shows the location of selected types of critical community facilities within Oneida County.

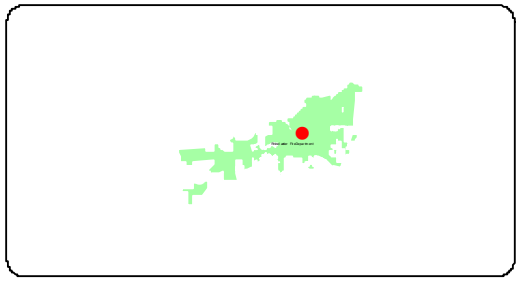
Table 10 lists critical community facilities that were identified by the municipalities.

Table 10	**Critical Community Facilities Identified by Municipalities**		
Municipality	**Description**	**Location**	**Approximate Value**
Crescent	Town Hall/Shop/Fire Dept/Storage	123 River Rd.	$615,300
	Fire Dept.	Golf Course Rd.	$33,856
	School	Boyce Dr.	N/A
	Hat Rapids Dam	Hat Rapids Rd.	N/A
Enterprise	Community Building	2977 Plantation Rd.	$189,380
	Storage Building	2977 Plantation Rd.	$16,514
Hazelhurst	Town Hall	9805 Yawkey St.	$221,100
	Fire Barn	Hwy 51	$373,000
	Town Shop	Oneida St.	N/A
Lake Tomahawk	Community Building	7246 Main St.	$748,899
	Fire Dept./Garage	7277 Bradley St.	$602,909
	Information Building	7226 Hwy 47	$30,440
	American Legion Building	7986 Scholte Blvd.	$150,904

	Old Town Garage	7984 Scholte Blvd.	$67,456
	Municipal Garage/Storage	7277 Bradley St.	$124,249
	Pavilion/Rest Rooms/Stand/Dugout	Snowshoe Park	$97,113
	Cemetery Building/Storage	Hwy 47	$13,000
	Misc. Outdoor Property		$85,105
Lynn	Fire Dept.	5086 Willow Rd.	$175,00
	St. Francis Church	5209 Willow Rd.	N/A
Minocqua	Town Hall/Court House	415 Menominee St.	3,346,000
	Police Dept.	418 Menominee St.	1,317,000
	Fire/EMS/Ambulance Station	415 Menominee St.	$328,300
	Bo Di Lac Fire Station	8528 Bo Di Lac Rd.	$450,800
	Marshfield Clinic	9061 Townline Rd.	N/A
	Emergency Shelter	415 Menominee St.	N/A
	MHLT Middle School	Lee Rd.	N/A
	Lakeland Union High School	8669 Old Hwy 70	N/A
	Nicolet College	8669 Old Hwy 70	N/A
	Waste Water Treatment	8780 Morgan Rd.	N/A
	Wisconsin Public Service	9429 Hwy J	N/A
	Minocqua Dam	Dam Rd.	N/A
Newbold	Town Hall/Fire Dept./Shop	4590 Hwy 47	$1,036295
	Garage/Pole	6704 Bridge Rd.	$281,152
	Fire Dept. #2	6349 Black LK. RD.	$205,922
Pelican	Town Hall/Pavilion/Storage Bld.	4093 Hwy 8	$796,693
	Garage/Storage Bld.	4896 River Rd.	$235,098
Pine Lake	Town Hall/Fire Dept.	5413 River Rd.	$506,186
	Town Shop	5277 River Rd.	$314,962
	Fire Hall #2	Hwy C	$101,238
Sugar Camp	Town Hall/Shop/Fire Dept.	4059 Camp 4 Rd.	$1,521,563
Woodruff	Police/Fire/Community Facility	750 Elm St	N/A
	Lakeland Sanitary Dist. Lift Stat.	750 Elm St.	N/A
	Woodland Estates Senior Housing	656 Elm St.	N/A
	Penny Place Senior Housing	820 3rd Ave.	N/A
	Howard Young Medical Center	240 Maple St.	N/A
	Woodruff Town Garage	724 Balsam St.	N/A
	Electric Power Station	8018 Hwy 47	N/A
	Imperial Estates Mobile Home Park	9000 Rudolph Rd.	N/A
	Lakeland Senior Center	412 Balsam St.	N/A
	Season's of Life Hospital	8951 Woodruff Rd.	N/A
Rhinelander	Library	106 N Stevens St.	$2,211,744
	Airport	3375 Airport Rd	$7,346,318
	Animal Shelter/Storage Blds.-Units	1852 N Stevens St.	$450,724
	City Shop/Storage Blds.	644 Washington St.	$902,670
	Police Dept.	201 N Brown St.	$826,711
	Fire Dept.	128 W Fredrick St.	$733,546
	City Hall	135 S Stevens St.	$1,172,392
	West Side Park	West Side Park	$57,695
	Hodag Park	Hodag Park	$359,864
	Restrooms	Rhinelander Area	$8,228
	Municipal Storage	2 Locations	$1,300,645
	Pioneer Park	Pioneer Park	$830,752
	Pump House	Hwy 8 W	$8,476
	Pump Station	1551 S. Oneida Ave.	$84,755
	Rhinelander Wells	Rhinelander Area	$104,796
	Water Utility	Coon St.	$172,638
	Wastewater Treatment Plant	869 Boyce Dr.	$8,562,224
	Water Tanks (2)	Rhinelander Area	$1,942474
	Barnes Street Landfill	Barnes St.	$6,809
	Skate Park/Statue/		N/A

Map 5
Fire Service
Oneida County, Wisconsin





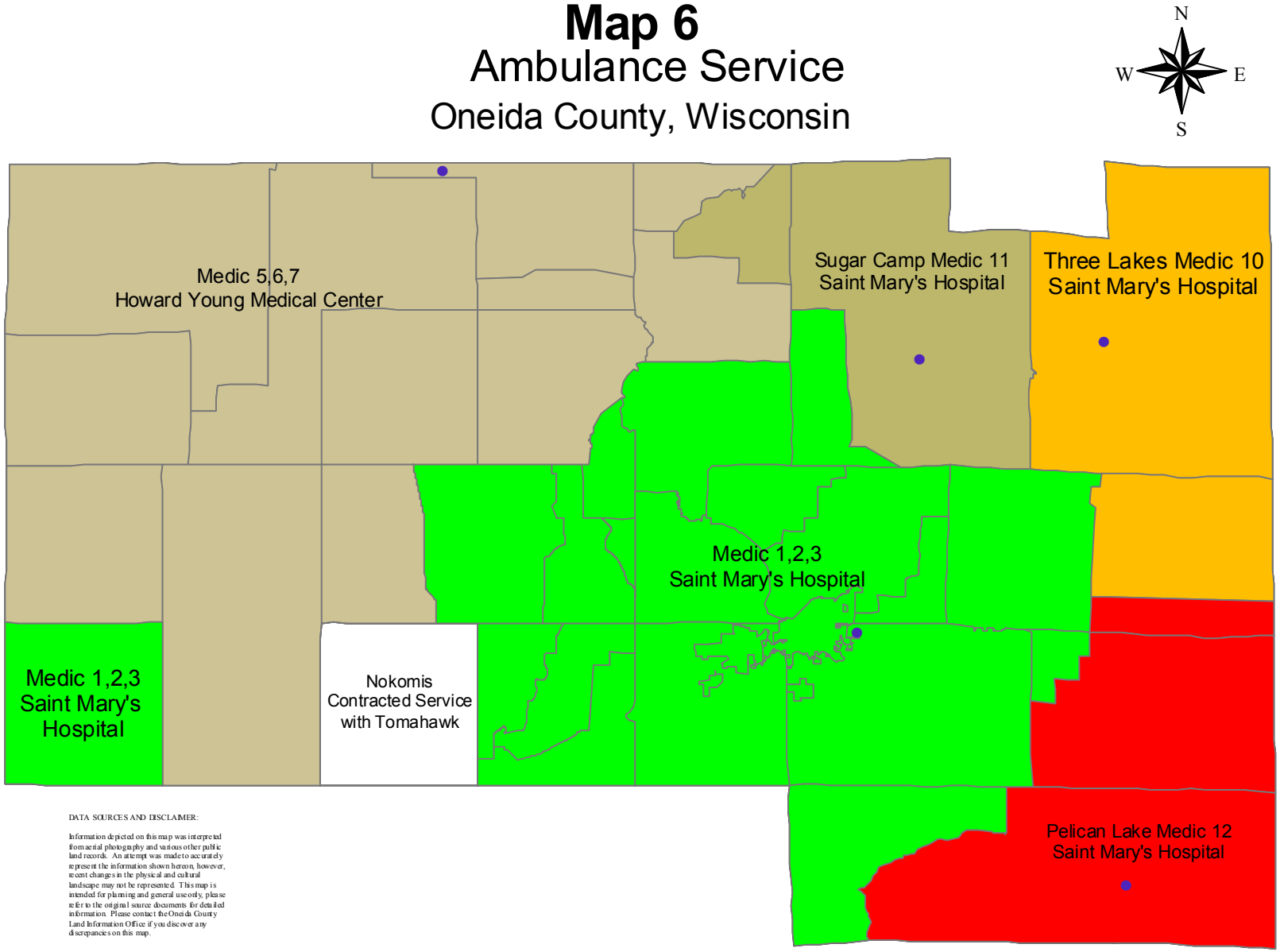
DATA SOURCES AND DISCLAIMER:

Information depicted on this map was interpreted from aerial photography and various other public land records. An attempt was made to accurately represent the information shown hereon, however, recent changes in the physical and cultural landscape may not be represented. This map is intended for planning and general use only, please refer to the original source documents for detailed information. Please contact the Oneida County Land Information Office if you discover any discrepancies on this map.

Planimetric information shown hereon was generated from 1:2 0000 scale photography taken in 1989 to meet National Map Accuracy Standards of 1"=400'. It is recommended that features and measurements be field verified.

● **Fire departments.shp**

Map 6
Ambulance Service
Oneida County, Wisconsin



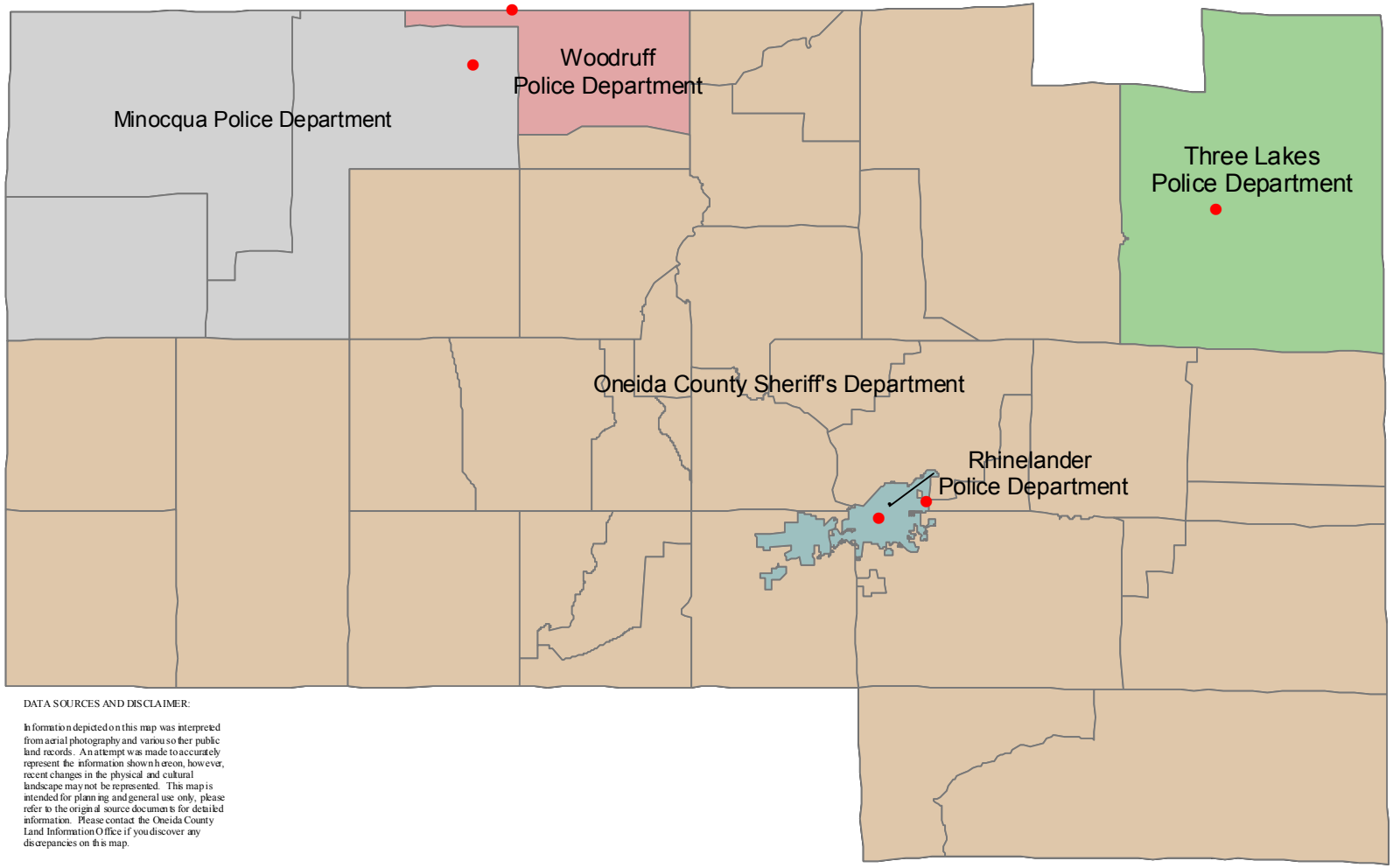
DATA SOURCES AND DISCLAIMER:

Information depicted on this map was interpreted from aerial photography and various other public land records. An attempt was made to accurately represent the information shown hereon, however, recent changes in the physical and cultural landscape may not be represented. This map is intended for planning and general use only, please refer to the original source documents for detailed information. Please contact the Oneida County Land Information Office if you discover any discrepancies on this map.

Planimetric information shown hereon was generated from 1:20000 scale photography taken in 1989 to meet National Map Accuracy Standards of 1"=400'. It is recommended that features and measurements be field verified.

Oneida County Emergency Management

Map 7
Law Enforcement Services
Oneida County, Wisconsin



DATA SOURCES AND DISCLAIMER:

Information depicted on this map was interpreted from aerial photography and various other public land records. An attempt was made to accurately represent the information shown hereon, however, recent changes in the physical and cultural landscape may not be represented. This map is intended for planning and general use only, please refer to the original source documents for detailed information. Please contact the Oneida County Land Information Office if you discover any discrepancies on this map.

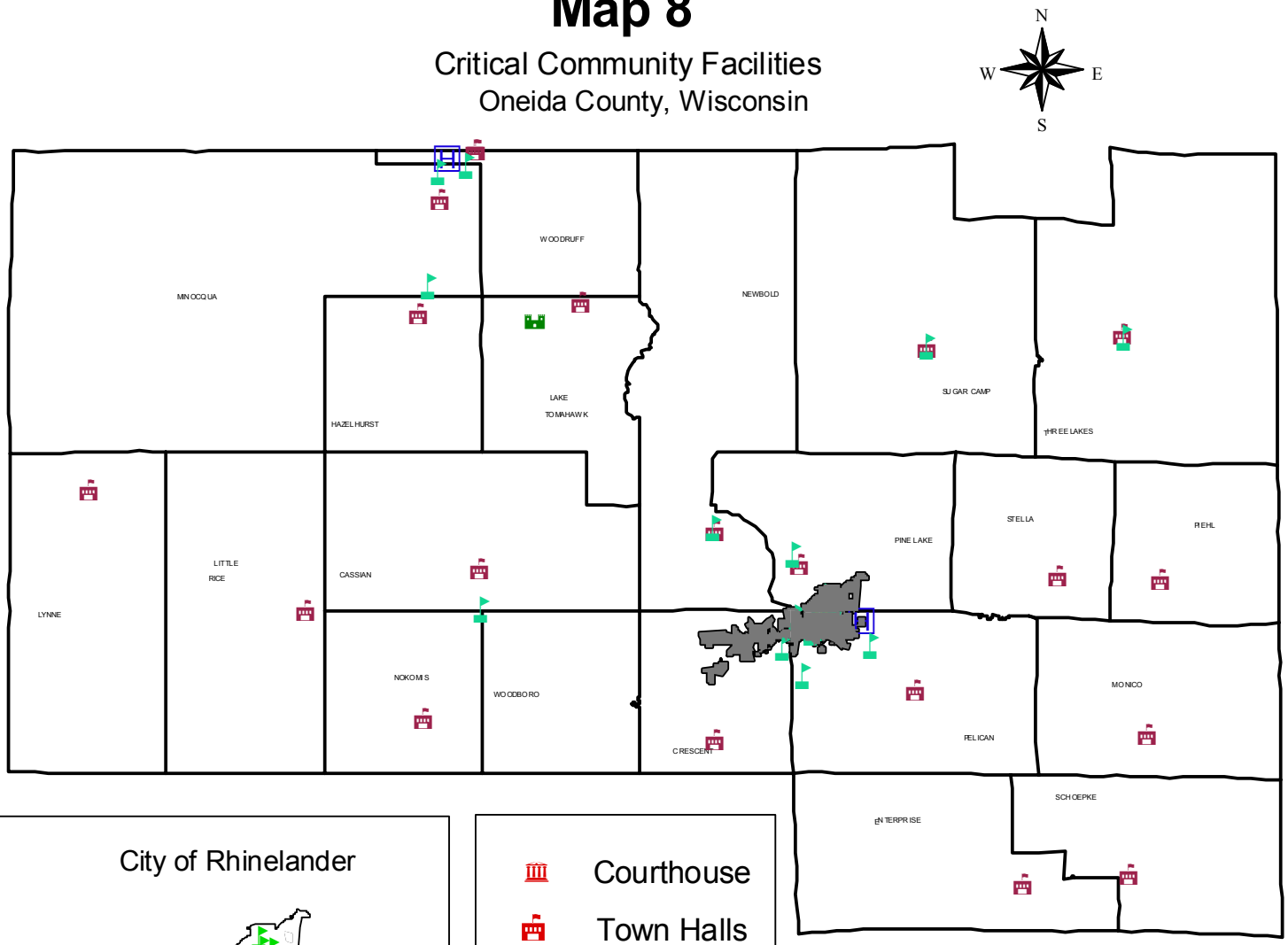
Planimetric information shown hereon was generated from 1:20000 scale photography taken in 1989 to meet National Map Accuracy Standards of 1"=400'. It is recommended that features and measurements be field verified.

Oneida County Emergency Management

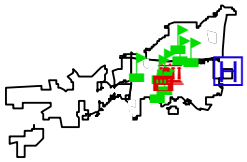
Map 8

Critical Community Facilities

Oneida County, Wisconsin



City of Rhinelander



- Courthouse
- Town Halls
- Hospitals
- Schools
- Prisons

DATA SOURCES AND DISCLAIMER

Information depicted on this map was interpreted from aerial photography and various other public land records. An attempt was made to accurately represent the information shown hereon; however, recent changes in the physical and cultural landscape may not be represented. The maps intended for planning and general use only, please refer to the original source documents for detailed information. Please contact the Oneida County Land Information Office if you discover any discrepancies on this map.

Planimetric information shown hereon was generated from 1:24000 scale photography taken in 1998 to meet National Map Accuracy Standards of 1"=400'. It is recommended that features and measurements be field verified.

Oneida County Emergency Management

Introduction

Identifying and analyzing the hazards in a community is an important and vital step in the mitigation planning process. Before mitigation strategies can be determined, a risk assessment must be made. Part III of Oneida County's All-Hazard Mitigation Plan will focus on the following:

- Identification of all types of natural and manmade hazards that can affect Oneida County.
- An analysis of the hazards identified in Oneida County
- History of previous occurrences of hazard events
- The County's vulnerability of future events

Hazard Identification

The process of identifying those hazards that should be specifically addressed in the Oneida County All-Hazards Mitigation Plan was based on consideration of a number of factors. The process first included a review of past hazard events to determine the probability of future occurrences and threat to human safety and property damage.

The most accessible tool in identifying hazards in Oneida County was from reports that already existed. In November 2002, Wisconsin Emergency Management (WEM) created the Hazard Analysis for the State of Wisconsin. It details the hazards that have caused or are likely to cause disasters in Wisconsin. This report also discusses hazards that threaten public health and safety, but may not be likely to cause a disaster. The descriptions of disasters, hazards and threats include information on frequency of occurrences, significant occurrences, potential and actual impacts and related programs.

A listing of possible hazards was to help identify which hazards should be included in the plan. The identification also included input from the Oneida County Local Emergency Planning Committee.

Based on these factors, hazards listed in this chapter are ranked according to threat to human safety and possible damage to property. The priority ranking of hazards accepted by the Local Emergency Planning Committee is as follows:

1. Severe Thunderstorms
2. Tornados
3. Flooding
4. Dam Failures
5. Winter Storms
6. Drought
7. Forest/Wild Fires
8. Hazardous Material Incidents

Hazard Analysis

The next step after identifying a hazard is to define the hazard and give some general background behind it. This can include hazard occurrences within the County or State. This section of Part III may also give some indication of the risk to public health and safety and to personal and public property.

History of Hazards

Past disaster experiences helps determine potential future occurrences for which Oneida County would be vulnerable. A review of past occurrences for each identified hazard in Oneida Count was completed.

Some disasters have had damages that exceed the capabilities of local communities and state agencies, federal assistance is then requested. Federal assistance may be offered through a variety of programs. Assistance may be directed to agricultural producers, individuals and families, business, or local governments. There have been six natural disasters in Oneida County where a Presidential Declaration was requested from 1971-2002. They include the following:

- 1976 Drought – Emergency Presidential Disaster Declaration approved
- 1977 High Winds and Hail – Emergency Presidential Disaster Declaration approved
- 1984 Tornados, High Winds, Lighting, Hail – Presidential Disaster Declaration denied.
- 1999 Heavy Rains/Severe Thunderstorms/Flooding – Presidential Disaster Declaration approved.
- 2000 Heavy Rain/Severe Storms/Flooding – Presidential Disaster Declaration approved.

It should be noted that this significantly underestimates the number of hazards that have occurred in Oneida County. Almost every year there are significant weather events or disasters that cause millions of dollars in damage for which no Federal disaster assistance is requested. Major indicators of hazard severity are the deaths, injuries, and economic losses resulting from natural hazards and disasters.

The National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center (NCDC) publishes National Weather Service (NWS) data describing recorded weather events and resulting deaths, injuries, and damages. From January 1950 to February 2004, NCDC reported 281 weather events for Oneida County. Table 7 summarizes the NCDC data by event. Though this data gives a good indication of the severity of each event, it is not indicative of the extent of deaths, injuries and damage for the County as a whole. In many cases, the

geographic area impacted by the hazard event was much larger than the County itself.

Table 11	Weather Hazard Events Recorded for Oneida County				
Event	**Number Events**	**Deaths**	**Injuries**	**Property Damage**	**Crop Damage**
Drought	1	0	0	0	0
Flood	10	0	0	$196,000	0
Hail	59	0	0	$339,000	0
Lightning	8	0	3	$751,000	0
Tornado	18	5	36	$51,181,000	$500
Wild/Forest Fires	0	0	0	0	0
Snow/Ice	55	0	0	0	0
Temperature Extreme	9	6	21	0	0
Thunderstorms	103	2	4	$2,258,000	$5,000
Total	263	13	64	$54,725,000	$5,500

Source: National Climatic Data Center

Because the NCDC data is not entirely comprehensive and indicative of the hazards that have occurred in the County, other sources of information were referenced. Theses sources included other plans and reports, documents from the Oneida County Emergency Management Department, past local newspaper articles, the Wisconsin Department of Natural Resources (DNR), Wisconsin Emergency Management (WEM), and the National Weather Service.

Vulnerability Assessment

For each hazard identified, a summary of the impact on the community is given. When possible, the numbers of existing buildings, infrastructure and critical facilities located in the hazard areas are inventoried. Critical facilities are defined as facilities that are critical to the health and welfare of the population, and are especially important following hazard events. This can include a hospital, town halls, mobile homes, or a concentration of homes around a lake.

Where possible, an estimate of the potential dollar losses to vulnerable structures is given. Values are identified by tax assessments, equalized values, or statements of values from insurance companies.

Because Oneida County is made up of local units of government, it is a requirement by FEMA to assess each jurisdiction's risk for each hazard. Unless noted in the specific hazard, all jurisdictions within Oneida County are equally vulnerable.

Hazard: Severe Thunderstorms

Hazard Analysis:

The National Weather Service definition of a severe thunderstorm is a thunderstorm event that produces any of the following: downbursts with winds of 58 miles per hour or greater (often with gusts of 74 miles per hour or greater), hail ¾ of an inch in diameter or greater or a tornado. Strong winds, hail, and lightning will be addressed in the section. However tornados will be referenced separately.

History of Severe Thunderstorms in Oneida County

Two recorded deaths and four injuries have resulted in association with severe thunderstorms in Oneida County since 1950. Three of the six requests for a Presidential Disaster Declaration for Oneida County have been associated with severe storms since 1971. The most recent occurrence happened on July 7th and 8th of 2000. A strong line of thunderstorms went through the county resulting in heavy rains causing widespread flooding throughout the county. As a result, fourteen municipalities requested a Presidential Declaration for a Major Disaster.

Throughout the month of July 1999, the northwestern portion of Wisconsin received an unusual amount of thunderstorm activity. The cumulative damage from these events led to a disaster declaration for ten counties. On July 30, 1999 Oneida County was the hardest hit from a line of thunderstorms. The storms resulted in two deaths, 50,000 people without electricity, damage to 150 to 200 homes and all major highways and secondary roads in the northern third of the County were blocked.

The NCDC reported 103 severe thunderstorm incidents from 1950 to 2004. According to the National Weather Service, Oneida County had seven events of hurricane-force thunderstorm winds between 1970 and 2001. Hurricane-force winds are classified as greater than 75 mph. Based on the number of previous events, severe thunderstorms are the most frequent of all the hazards considered in the All Hazards Mitigation Plan.

Vulnerability Assessment:

The National Weather Service can forecast and track a line of thunderstorms that may be likely to produce severe high winds, hail, and lightening but where these related hazards form or touch down and how powerful they might be remains unpredictable. The distribution of thunderstorms and related hazard events have been widely scattered throughout the County.

Many thunderstorm events (without tornados) have caused substantial property and infrastructure damage, and have the potential to cause future damage. In

order to assess the vulnerability of the Oneida County area to thunderstorms and related storm hazards, a review of the past events indicate significant impacts to:

- Infrastructure – Hospitals, schools, street signs, police and fire departments
- Utilities – electrical lines / poles / transformers, telephone lines, radio communications
- Transportation – debris clean-up
- Residential – mobile homes, garages, trees and limbs, siding, windows
- Businesses – signs, windows, siding, billboards
- Agriculture – building, crops
- Vehicles – campers, boats, windshields, body, paint

According to the NCDC, historic thunderstorm events with associated high winds reported $110,652 in property damage and $5,000 in events that reported crop damage. Historic thunderstorm events with associated hail that reported damage averaged $3,390 in property damage no crop damage amounts were reported. Historic thunderstorm events with associated lightening that reported property damage averaged $375,500.

Based on review of the historical patterns of thunderstorms associated with high wind, hail, or lightening, there are no specific municipalities that have unusual risks. The events are relatively uniform and a countywide concern.

Future Probability and Potential Dollar Losses-Severe Thunderstorms:

Historical data from the National Weather Service predicts that Oneida County has a 23 percent chance of having a severe thunderstorm event with hurricane-force winds (75 mph or greater) in a given year. This equates to just less than one event every four years.

Historical date from NCDC indicates that Oneida County will have 1.9 general severe thunderstorm events in a given year. The probability of a thunderstorm with damaging hail (0.75 inch diameter or greater) is 1.09 or 109% in a given year.

The probability of a storm severe enough to warrant a presidential disaster declaration is 0.10 or a 10 percent chance in a given year.

Historical data is again used to estimate potential future dollar losses due to severe thunderstorms. In Oneida County, severe thunderstorms have averaged damages of $115,652 for high winds events and $3,390 in hail events. The potential loss over the next ten years taking into consideration a 23 percent chance of a high winds event is estimated at $231,304. This is based on two events averaging $115,652 in damages per event. The potential loss over the next ten years, taking into consideration a 1 percent chance per year of a

damaging hail event is estimated at $33,900. This is based on ten events averaging $3,390 in damages per event.

Hazard: Tornados

Hazard Analysis:

U.S. tornados are classified into six intensity categories, named F0-F5. These categories are based upon the estimated maximum winds occurring within the funnel. The Fujita Tornado Scale (or the "F Scale") has subsequently become the definitive scale for estimating wind speeds within tornados based upon the damage done to buildings and structures. It is used extensively by the National Weather Service in investigating tornados (all tornados are not assigned an F scale), and by engineers in correlating damage to building structures and techniques with different wind speeds caused by tornados. Though the Fujita scale itself ranges up to F12, the strongest tornado winds reach the F5 range (261 to 318 mph).

Wisconsin lies along the northern edge of the nation's maximum frequency belt for tornados, called "tornado alley" by some, which extends northeastward from Oklahoma into Iowa and then across to Michigan and Ohio. Broadly speaking, the southern and western portions of Wisconsin have a higher frequency of tornados, however Oneida County is not part of this area.

Table 12	Tornado Wind Damage Scale		
Tornado Scale	**Wind Speeds**	**Damage**	**Frequency of Occurrence**
F0	40 to 72 MPH	Some damage to chimneys, TV antennas, roof shingles, trees, and windows	29%
F1	73 to 112 MPH	Automobiles overturned, carport destroyed, trees uprooted.	40%
F2	113 to 157 MPH	Roofs blown off homes, sheds and outbuildings demolished, mobile homes overturned	24%
F3	158 to 206 MPH	Exterior walls and roofs blown off homes. Metal buildings collapsed or severely damaged. Forests and farmland flattened.	6%
F4	207 to 260 MPH	Few walls, if any, standing in well built homes. Large steel and concrete missiles thrown far distances	2%
F5	261 to 318 MPH	Homes leveled with all debris removed. Schools, motels, and other larger structures have considerable damage with exterior walls and roofs gone. Top stories demolished	Less than 1%

History of Tornados in Oneida County:

Oneida County has had 17 verified tornados from 1950 to 2002 (Table 13). Since 1950 the effects of tornados resulted in over 51 million dollars in damage, killed 5 people and injured 36.

Seven of the tornados recorded in Oneida County were classified as F0; five were reported as F1, three were recorded as F2, two recorded as F3, and one recorded as a F4.

The strongest recorded tornado occurred on June 25, 1950. It was recorded as a F4 tornado that resulted in approximately $250,000 in damage, two deaths, and twelve injuries. The storm length was 13 miles long by approximately 880 yards wide. In 1984 and 1985 two F3 tornados were reported in Oneida County. The 1984 tornado resulted in 1 death, 5 injuries and approximately 25 million dollars in damage. The storm created a path approximately 16 miles long and 87 yards wide. The 1985 tornado resulted in 2 deaths, 16 injured, and approximately 25 million dollars in damage. The storm created a path approximately 47 miles long and 2,640 yards wide.

Table 13 shows the recorded tornados from 1950 to 2002.

Table 13	Reported Tornados in Oneida County						
Date	**Time**	**Length**	**Width**	**F Scale**	**Deaths**	**Injuries**	**Cost**
06/25/50	2100	13 Miles	880 Yards	F4	2	12	250K
06/20/53	1800	2 Miles	100 Yards	F1	0	0	25K
06/14/80	1325	2 Miles	50 Yards	F1	0	3	25K
06/14/80	1422			F0	0	0	0
06/13/81	2040			F0	0	0	25K
06/13/81	2100			F2	0	0	250K
04/27/84	1437	16 Miles	87 Yards	F3	1	5	25M
06/08/85	1852	47 Miles	2640 Yards	F3	2	16	25M
07/04/86	1935	2 Miles	100 Yards	F2	0	0	250K
08/01/88	1820	0 Miles	20 Yards	F0	0	0	0
06/27/91	1820	6 Miles	400 Yards	F2	0	0	250K
08/09/93	2015	0 Miles	50 Yards	F0	0	0	1K
08/14/00	1910	0 Miles	25 Yards	F0	0	0	0
05/01/01	2055	2 Miles	125 Yards	F1	0	0	15K
09/06/01	1609	1 Miles	30 Yards	F0	0	0	66K
04/18/02	1557	0 Miles	25 Yards	F0	0	0	0
04/18/02	1633	0 Miles	25 Yards	F0	0	0	O
				Totals:	**5**	**36**	**50.1M**

Source: National Climatic Data Center (NCDC)

Vulnerability Assessment:

Though Oneida County is mostly a rural county, there are concentrations of population scattered throughout the County. Local communities and the City of Rhinelander area can be regarded as vulnerable because these areas pose more of a threat to human safety and property damage. Map 8 illustrates these areas within the County.

Mobile homes are of significant concern in assessing the hazard risks from tornados. In general, it is much easier for a tornado to damage and destroy a mobile home than standard constructed houses and buildings. Research by the National Weather Service (NWS) shows that between 1985 and 1998, 40 percent of all deaths in the nation from tornados were in mobile homes, compared to 29 percent in permanent homes, and 11 percent in vehicles.

Oneida County has 26 trailer Courts located through out the County. Within the 26 trailer courts there are approximately 950 individual sites. The largest trailer court is located in the City of Rhinelander and has approximately 115 sites. The second largest is located in the Town of Minocqua and has approximately 107 sites. Table 14 below lists the number of mobile homes reported by the Census for each municipality in the County. It also lists the fair market values and an individual average by municipality. Owners of these mobile homes do not own the land but rather rent or lease the land it resides on. In most cases, these are in mobile home parks. The total fair market value of all the mobile homes for each municipality was totaled and divided by the number of mobile homes in the municipality to get an average fair market value. The average County fair market value for a mobile home is $16,615.

Table 14 Mobile Home Values

Municipality	Number	Total Fair Mkt. Value	Average Fair Mkt.
Cassian	7	$158,753	$22,679
Crescent	3	$58,263	$19,421
Hazelhurst	12	$183,072	$15,256
Lake Tomahawk	33	$435,699	$13,203
Little Rice	70	$633,010	$9,043
Lynne	7	$139,629	$19,947
Minocqua	166	$6,178,354	$37,219
Monico	4	$81,952	$20,488
Newbold	78	$343,278	$4,401
Nokomis	18	$84,204	$4,678
Pelican	184	$3,113,280	$16,920
Piehl	2	$25,556	$12,778
Pine Lake	52	$1,149,512	$22,106
Schoepke	15	$171,645	$11,443
Stella	30	$525,360	$17,512

Sugar Camp	23	$322,782	$14,034
Three Lakes	28	$317,800	$11,350
Woodboro	3	$20,925	$6,975
Woodruff	75	$2,462,700	$32,836
City of Rhinelander	248	$6,336,600	$20,022

Source: U.S. Census and the City of Rhinelander

Besides mobile homes, there are many other areas vulnerable to tornados such as campgrounds. Like mobile home parks, campgrounds are of concern in the County because often times there is a concentration of people with little shelter or no shelter provided. Map 9 shows the locations of the state owned and operated campgrounds. In addition to state owned and operated campgrounds there are a number of privately owned campgrounds.

Youth camps present another concern for Oneida County. Youth camps operate during the summer months and contain large populations of juveniles and young adults. Most youth camps consist of cabins used for sleeping and daily activities. A large number of these cabins are wood structures with no basements. This presents a problem for safely sheltering people in the event of a tornado or severe thunderstorm.

The following is a list of things that may be affected by a tornado. Much of this list can be referenced in Part II.

- Community facilities- hospitals, schools
- Public Service- police and fire departments
- Utilities- power lines, telephone lines, radio communication
- Transportation-debris clean-up
- Residential- nursing homes, garages, trees and limbs, siding, windows
- Businesses- signs, windows, siding, billboards
- Agriculture- buildings, crops, livestock

Based on review of historical events of tornados, there are no specific areas in the county that have unusual risks. The events are relatively uniform and a countywide concern.

Future Probability and Potential Dollar Losses-Tornados:

Based on the historical data presented here, Oneida County can expect a tornado about once every 3 years on average. This equates to a probability of .33 or about a 33 percent chance in a given year. Table 15 indicates the probability of a specific magnitude.

Table 15 Probability in any given year by intensity for Oneida County						
Tornado Scale	**F0**	**F1**	**F2**	**F3**	**F4**	**F5**
Number of reported Tornados	8	1	3	2	0	0
Probability of Occurrence	36.3%	4.5%	13.6%	9%	<1.%	<1.%

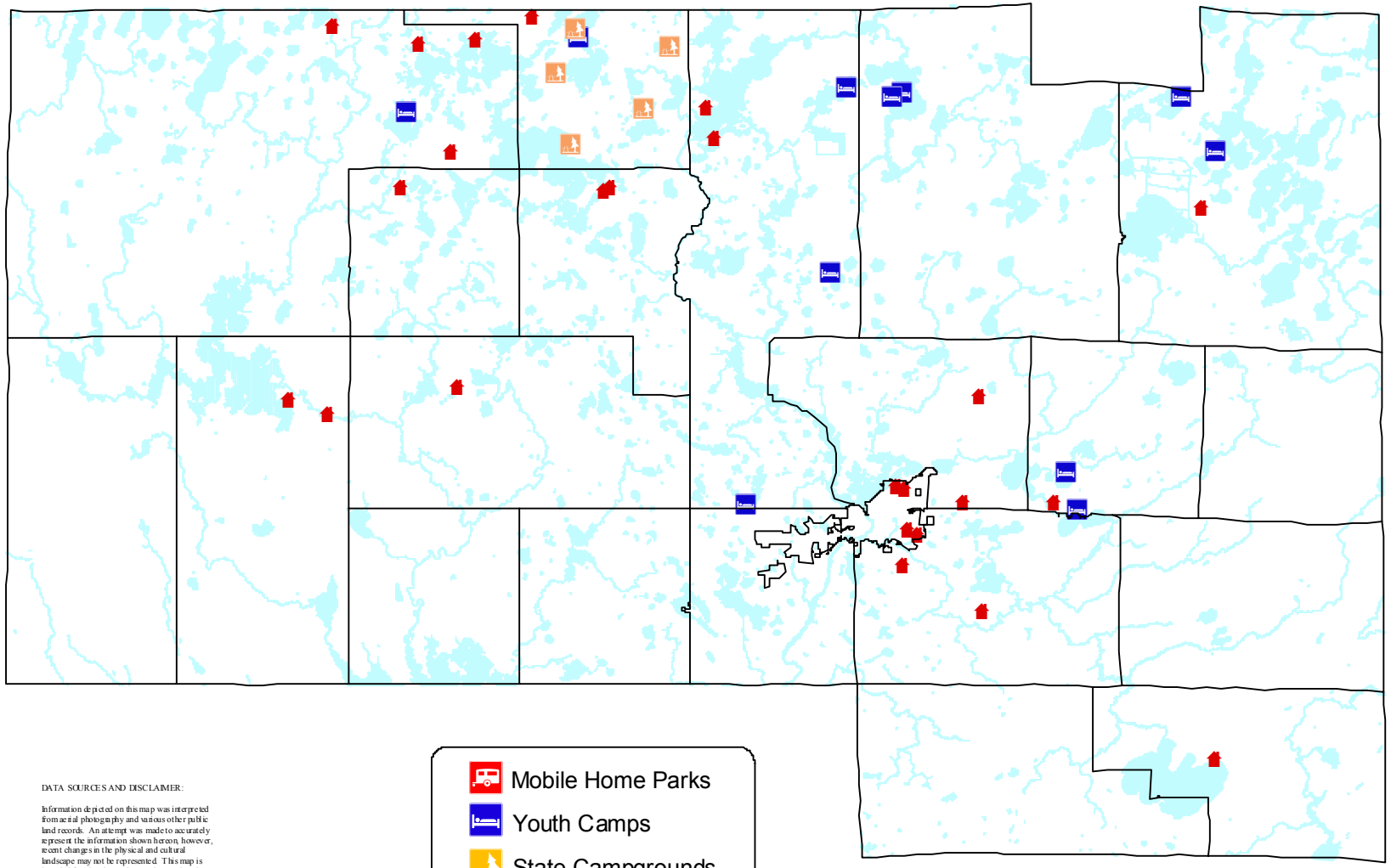
Source: National Climatic Data Center (NCDC) Based on Historical Data from 1980 to 2002

Historical data is again used to estimate potential future dollar losses due to tornados. Estimated damages from various tornados in Oneida County range from $0 to $25 Million. On average, Oneida County might expect damages of $3,632,643.00 per tornado, however, only two of these 14 tornados resulted in damages exceeding $1 million dollars, three others had $250,000, one had $66,000, and the others were $25,000 or less.

Map 9

Tornado Vulnerability

Oneida County, Wisconsin



DATA SOURCES AND DISCLAIMER:

Information depicted on this map was interpreted from aerial photography and various other public land records. An attempt was made to accurately represent the information shown hereon, however, recent changes in the physical and cultural landscape may not be represented. This map is intended for planning and general use only, please refer to the original source documents for detailed information. Please contact the Oneida County Land Information Office if you discover any discrepancies on this map.

Planimetric information shown hereon was generated from 1:20000 scale photography taken in 1989 to meet National Map Accuracy Standards of 1"=400'. It is recommended that features and measurements be field verified.

Oneida County Emergency Management

Hazard: Flooding

Hazard Analysis:

Major floods in Oneida County tend to occur either in the spring when melting snow adds to normal runoff or in summer or early fall after intense rainfalls. Flooding which occurs in the spring due to snowmelt and /or a prolonged period of heavy rain is characterized by a period of days. This build up continues until the river or stream overflows its banks, for as long as a week or two and then slowly recedes inch by inch. The timing and location of this type of flooding is fairly predictable and allows ample time for evacuation of people and protection of property.

Flooding is the most significant hazard in Oneida County, particularly because it borders the Wisconsin River. As described in Part II, there are approximately 830 miles of streams in Oneida County within fourteen main watersheds.

Floodplains exist along the Wisconsin River and the tributaries that feed into it. These floodplains are narrow along tributaries and lakes but extensive throughout the County. Floodplains are described in Part II and shown of Map 4 of this plan. The Federal Emergency Management Agency (FEMA) identified these floodplains on Federal Insurance Rate Maps (FIRMs), while the North Central Wisconsin Regional Planning Commission digitized them into a GIS coverage.

History of Flooding in Oneida County:

Flooding was the principal cause of damage in two of the six Presidential Disaster Declarations in Oneida County from 1950 to 2002. The most recent flood event occurred in 2000. Between July 2nd and July 10th the county received heavy rainfall resulting in three Urban Small Stream Floods and two additional flooding events. Oneida County was one of thirty counties included in a Presidential Disaster Declaration. As a result, twelve towns, the City of Rhinelander, and the county highway system, reported damages of approximately $146,288.16. An additional administrative cost of $5,043.57 brought the total flood damage request to $151,331.73.

In 1999 Oneida County received another Presidential Disaster Declaration. The declaration was awarded after severe storms passed through the area causing wind and water related damage. This Presidential Disaster Declaration included ten counties in the northern portion of the state.

The NCDC recorded ten flood events from 1996 to 2003. Five of the ten events occurred in July of 2000. For the purpose of determining future events, the five 2000 flood events will be recorded as one event. Six significant events will be

used to determine the probability of future events later in this plan. Since 1996 the effects of flooding caused $196,000.00 in damages throughout the County.

Vulnerability Assessment

Flood events in the County have caused substantial property and roadway damage in the past, and have the potential to cause future damage. Looking at past events, the following have been significantly impacted by flooding:

- Roadway- Washouts, inundated roadways, debris clean-up
- Residential Structures- Flooded basements, damaged septic systems
- Agriculture- inundated cropland
- Businesses-Loss of commerce

In order to assess the flooding vulnerability of Oneida County, applicable basic inventory asset data described in Part II must be analyzed. For this purpose, special consideration should be given to structures (specifically critical facilities), infrastructure and cropland.

One of the first reports to reference in assessing vulnerability to structures during flooding is the State of Wisconsin Repetitive Loss Report (Updated in 2000). The Repetitive Loss Report provides information to the status of repetitive loss property by community in Wisconsin. FEMA, through the Federal Insurance Administration (FIA), classifies a repetitive loss structure "when more than one flood insurance claim of at least $1,000 is made within a ten-year period". The information is used as a floodplain management tool and to supplement information provided by communities for flood mitigation grants administrated by WEM. According to the report, there are no local units of government within Oneida County contain existing repetitive loss structures.

With no structures in the County shown in the Repetitive Loss Report, structures within floodplains were analyzed. The floodplain boundaries (as well as the watershed boundaries) within Oneida County are shown on Map 4 in Part II. These areas are generally located along the Wisconsin River, and its major tributaries. Map 4 is based off the Flood Insurance Rate Maps of 1991.

Methodology 1 – Structures within Floodplains:

1. North Central Wisconsin Regional Planning Commission digitalized (electronically traced) the individual FEMA FIRM floodplain maps into a GIS coverage for the County.

2. A GIS floodplain coverage was combined with a GIS building structure coverage to determine which man-made structures were located within the floodplain. This is demonstrated on page 3-14.

3. The man-made structures identified were determined to be "Vulnerable" to flooding.

4. Those identified structures recognized as vulnerable were then verified/rectified on the digital aerial photos coverage.

5. An average fair market value of residential structures for each municipality was identified by the 2002 County tax information.

6. The estimated value of vulnerable structures was determined by multiplying the number of structures located in the floodplain by the average fair market value of that municipality.

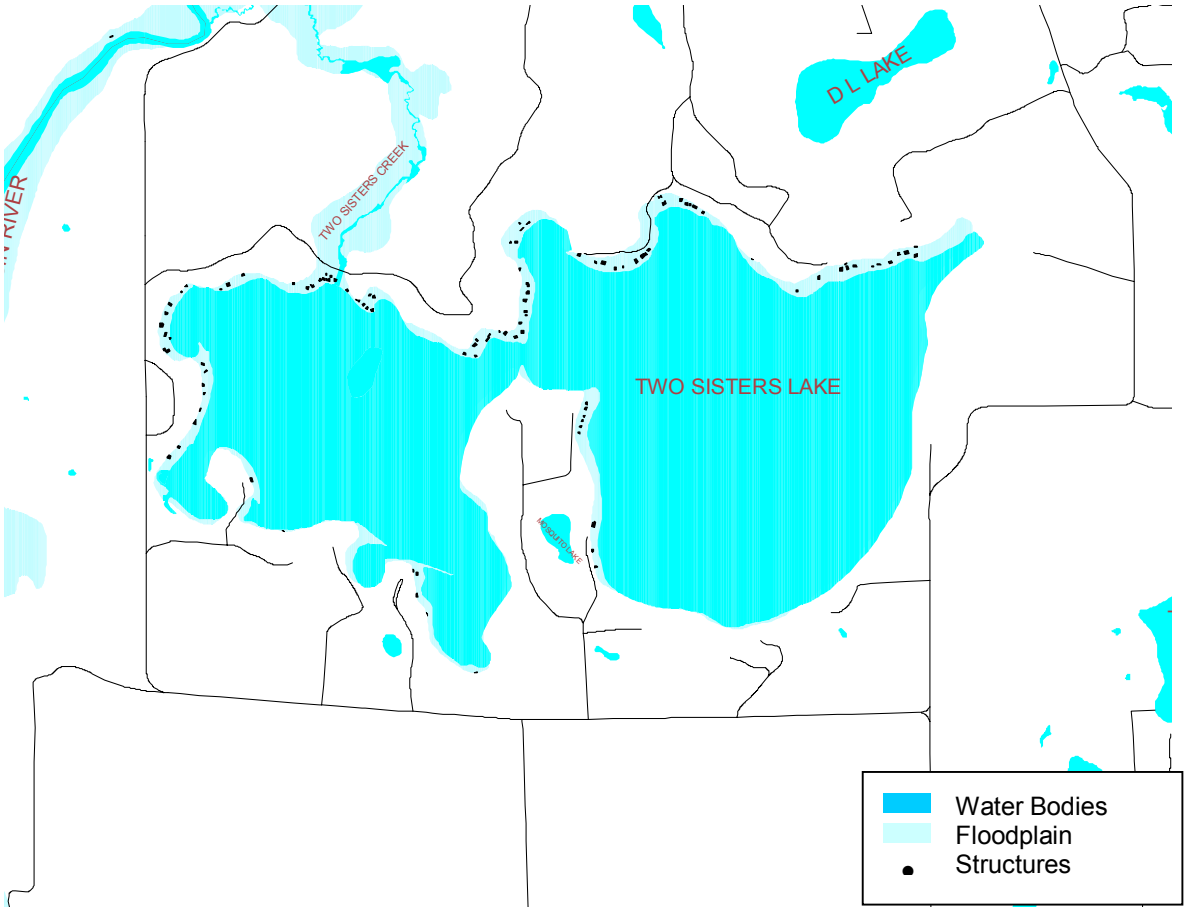


Table 16 shows the number of structures in each municipality that are identified as "vulnerable to flooding" according to the above methodology. There were a total of 2,582 structures identified in the designated floodplain boundaries. The average value of a structure was $81,362. An estimated value of structures in Oneida County that are located in the designated floodplain boundaries is $210,076,684.

Table 16	2002 Fair Market Values of Structures Located in Floodplains		
Municipality	**# of Structures**	**Average Value**	**Total Value**
Cassian	82	$84,991	$6,969,262
Crescent	18	$81,052	$1,458,936
Enterprise	66	$93,821	$6,192,186
Hazelhurst	24	$109,842	$2,636,208
Lake Tomahawk	69	$86,411	$5,962,359
Little Rice	50	$57,471	$2,873,550
Lynn	39	$45,778	$1,785,342
Minocqua	478	$116,557	$55,714,246
Monico	11	$50,311	$553,421
Newbold	295	$99,810	$29,443,950
Nokomis	139	$88,814	$12,345,146
Pelican	82	$79,048	$6,481,936
Piehl	16	$52,334	$837,344
Pine Lake	186	$88,703	$16,498,758
Schoepke	158	$49,994	$7,899,052
Stella	51	$84,635	$4,316,385
Sugar Camp	153	$75,288	$11,519,064
Three Lakes	372	$100,085	$37,231,620
Woodboro	80	$104,499	$8,359,920
Woodruff	158	$88,183	$13,932,914
Rhinelander	55	$70,983	$3,904,065
Oneida County	**2,582**	**$81,362**	**$210,076,684**

Source: Oneida County Emergency Management/Tax Information

Since flooding occurs outside the 100-year floodplain boundaries, a second methodology was used to determine the County's vulnerability to flood events. This includes structures out of the floodplain boundary based on inundated areas during past flood events.

Methodology 2 – Flooding from Past Events

1. Oneida County Emergency Management complied a list of damage from the 2000 flood, the most recent Presidential Disaster Declaration.

2. All structures, residential and business, that reported damage was averaged (fair market value) and used to determine potential future damage.

3. The reported damage amounts were taken and averaged to estimate future damage amounts.

4. From the above information in 2 and 3, an average potential damage figure along with an average actual damage figure was calculated. From this calculation an average fair market value structure can expect an average actual damage of a determined amount.

Table 17 shows the number of structures identified as "damaged" according to methodology 2 in the inundated areas as a result of the 2000 flood. There were a total of 113 structures identified in flooded areas in 2000. The potential damage or total fair market value of the structures affected by the flood is over thirteen million dollars. The average value of a structure that was affected by the flood was $147,121.91.

Table 17	**Estimated Fair Market Values in Inundated Areas**		
Based on the 2000 Flood Event	**# of Structures**	**Average Fair Market Value**	**Total**
Residential Structures	105	$110,043.81	$11,554,600.00
Business Structures	8	$184,200.00	$1,473,600.00
Total	113	$294,243.81	$13,028,200.00

Oneida County Emergency Management 2000 Flood Declaration

Table 18 shows the actual structural and nonstructural damage amounts from the 2000 flood. The highest damage figure was in the residential nonstructural category. Nonstructural damage may include but is not all inclusive of water damage in basements, driveway washouts, personal property, furniture, and appliances.

The second highest damage figure was in the residential structural category. Structural damage may include but is not all inclusive of foundation damage and septic system damage.

An average residential home involved in the 2000 flood valued at $110,043.81 would likely have approximately $2,678.00 in nonstructural damage (furniture, personal property, etc…), if the structure itself was damage the amount would be approximately $8,214.

The business sector suffered the same type of losses associated with structural and nonstructural damage, as did the residential sector. Higher losses were reported in the nonstructural category then in the structural category.

Table 18	2000 Actual Flood Damage Amounts			
Damage Description	**# of Site with damage**	**Total damage**	**Average Damage**	**# of Sites with Unknown Damage**
Residential Structural Damage Reported	7	$57,500	$8,214	14
Business Structural Damage Reported	1	$1,500	$1,500	1
Residential Nonstructural Damage	44	$117,849	$2,678	40
Business Nonstructural Damage	6	$14,400	$2,400	0

Oneida County Emergency Management 2000 Flood Declaration

In addition to structural damage from past flood events, there has been significant damages to public roadways, particularly to roadway surfaces, culverts, ditches, and bridges. Floods have inundated roadways in the County from a period of a few days up to as much as three months. Such interruptions in the County transportation network cause travel delays through detours.

The primary Impact from damages to roadways is to businesses. The monetary impact is unknown but past floods have restricted public access and have even closed businesses. Since tourism is an important industry to the County, several campgrounds, lodges, and restaurants may be affected by flooding.

The agriculture industry is a sector that can face substantial losses. During floods, cool, rainy/wet, sunshine deficient climatic conditions of the spring and summer create a general condition of high water and saturated soils throughout the County.

Flood conditions can leave farmers with the following economic setbacks:

- Delayed planting (reduced growing season)
- Prevention of fields from being seeded
- Seed and agriculture chemicals washing out of the fields
- Rotting of plants due to excess moisture
- Areas where planted crops left in the fields due to excessive moisture
- Crops not reaching full maturity or stunted growth
- Requirements by farmers to expend higher amounts of money on additional soil amendments
- Lower quality (nutritional value) of harvestable crops as a feed source

Reductions in quantity can result in loss of revenues from cash crops and increase expenses for purchasing the needed livestock feed from outside sources. Additionally, reductions in crop quality result in lower prices received for cash crop.

Saturated soil conditions responsible for these woes are generally throughout the County. Agricultural land in Oneida County is scattered throughout the County.

Seed and chip potatoes are the primary cash crops grown by two major suppliers Frito-Lay and Sowinski Farms.

Economic losses to farmers can generate a ripple affect to the local community as well. Reduction in farm income will curtail the farmers' ability to purchase new equipment and make other improvements. Farmers will have less money to spend at farm dealers, farm supplies, building/hardware suppliers, fertilizer, feed and seed dealers, and other agribusiness and retail establishments. The State itself will have reduced tax revenue. Farmers will have less money to save and invest, and suffer still more increases in debt load.

The forest products industry is affected similarly to agriculture. Forestlands become too wet for logging operations and many water logged tree plantations suffer high mortality rates.

Future Probability and Potential Dollar Losses-Flood:

Based on the historical data presented here (frequency of past events/6 events in 7 years), Oneida County can expect a flood event about every 1.2 years on average. This equates to a probability of .85 or about 85 percent chance each year. The damage resulting from the frequent flooding may be minor and unpredictable. During the seven-year period, two of the floods recorded resulted in a Presidential Disaster Declaration. Taking this into consideration, the County might expect a significant flood every 3.5 years on average. This equates to a probability of .28 or about a 28 percent chance each year. Consideration must be given to the close time frame of the 1999 flood and the 2000 flood and the fact that previous significant flood events were not factored into this average.

Historical data was again used to estimate future dollar losses due to flooding. Based on the 2000 flood event for which we have fairly good loss figures, Oneida County can anticipate losses of approximately $191,249. Thirty percent or $57,500 can be expected in the residential structural category and sixty two percent or $117,849 can be expected in the nonstructural residential category. Less than one percent or $1,500 can be expected in the business structural category. Seven percent or $14,400 can be expected in the nonstructural business category.

An average residence involved in a significant flood can expect approximately $2,678 in damage to personal property like furniture, appliance, etc… The average structural damage to a residence is approximately $8,214, mainly consisting of foundation damage.

Hazard: Dam Failures

Hazard Analysis:

A dam can fail for a number of reasons such as excessive rainfall or melting snow. It can also be the result of poor construction or maintenance, flood damage, earthquake activity, weakening caused by burrowing animals or vegetation, surface erosion, vandalism or a combination of these factors. Dam failures can happen with little warning resulting in the loss of life and significant property damage in an extensive area downstream of the dam.

There are 42 dams in Oneida County and along the Wisconsin River. These dams serve many useful purposes including agricultural uses, providing recreational areas, electrical power generation, erosion control, water level control and flood control. According to the DNR, Oneida County has 20 large dams (including Hat Rapids, Rainbow Reservoir and Willow Reservoir), which have a structural height of over 20 feet. The Wisconsin Department of Natural Resources (WDNR) regulates all dams on waterways to some degree, however small dams are not stringently regulated for safety purposes. The federal government has jurisdiction over large dams that produce hydroelectricity. At least two of the dams have the ability to produce hydroelectricity in Oneida County, Hat Rapids and the Rhinelander Paper Mill.

The Wisconsin Department of Natural Resources assigns hazard ratings to large dams within the state. When assigning hazard ratings, two factors are considered: existing land use and land use controls (zoning) downstream of the dam. Dams are classified into three categories that identify potential hazards to life and property downstream should the dam fail. A high hazard indicates that a failure would most probably result in the loss of life. A significant hazard indicates a failure could result in appreciate property damage. A low hazard exists where failure would result in only minimal property damage and loss of life is unlikely. For Oneida County, there are four dams that have a high hazard rating- Willow Reservoir, Minocqua, Rainbow Reservoir, and the Rhinelander Paper Company. North Pelican Lake and Burnt Rollways have a significant rating, while the rest are low.

All dams perceived as posing a threat to downstream development should have a Dam Failure Analysis performed in order to identify the hydraulic shadow (that area of land downstream form a dam that would be inundated by water upon failure of the dam during a regional flood). This information can be used to develop an Emergency Action Plan (EAP) for the dam. The EAP includes provisions for notifying emergency authorities for assistance and warning affected downstream residents if the potential for failure exists.

History of Dam Failures in Oneida County:

Oneida County has not experienced a dam break with any loss of life or substantial property damage. However, the recent Marquette County dam blowout in Michigan's Upper Peninsula is a prime example of the kind of destruction a dam failure can cause. On May 15, 2003, an earthen dike washed away after heavy rainfall. The preliminary damage was estimated at $102 million. It washed away $3 million worth of roads and bridges, plus 20 homes, and sent a massive plume of sediment into Lake Superior. It was a serious blow to the economy of Marquette County hurting basic industries and tourism. On July 14, 2002 the Oneida County Sheriff's Department received a report of a large piece of concrete falling off the Rainbow Flowage Dam. Wisconsin Valley Improvement investigated the report and found the dam to be structurally safe.

Table 19	Oneida County Dams				
Township	**Name**	**Size**	**Hydraulic & Structure Height (feet)**	**Hazard Potential**	**Most Recent Inspection**
Cassian	Spruce Lake	Large	5.0/7.0	Low	08/27/91
	Laux	Small	6.0/9.0	Low	06/18/68
Crescent	Hat Rapids	Large	20.0/30.0	Low	NA
Hazelhurst	Lake Katherine	Small	2.0/4.0	Low	
	Hazelhurst Canal	Small	NA/4.2	NA	
Lake Tomahawk	Horsehead	Small	5.0/6.0	Low	
Little Rice	Felser, Carl R.	Small	4.0/7.0	NA	05/09/01
	Shot & Hook Club	Large	11.0/11.0		
	Little Rice River	Large	12.0/15.0	Low	11/06/92
	Willow River Reservoir	Large	12.0/27.0	High	
Lynne	Willow Region	Small	3.0/5.0	Low	04/23/03
Minocqua	Franklin Lake	Small	1.0/3.0	NA	NA
	Squirrel Lake	Large	5.0/7.0	Low	NA
Minocqua	Skunk Lake	Small	1.0/2.0	NA	NA
	Minocqua	Large	10.0/10.0	High	NA
Newbold	Two Sisters Lake	Small	2.0/4.0	NA	NA
	Rainbow Reservoir	Large	21.0/27.0	High	
	Pickerel Canal	Large	n/a	NA	
	Pickerel Control	Large	n/a	NA	
	Fredrichs	Small	1.0/5.0	Low	
Nokomis	Swamp Lake	Small	2.0/5.0	Low	06/21/74
Pelican	North Pelican Lake	Large	5.0/10.0	Significant	
	Midget Lake Outlet	Small	2.0/4.0	NA	NA
	George Lake	Small	3.0/3.0	NA	04/12/01
City of Rhinelander	Rhinelander	Large	32.0/35.0	High	
Sugar Camp	Lake McDonald Dam	Small	.4/NA	NA	NA
Sugar Camp	Sowinski, Henry No.1	Small	4.0/6.0	NA	NA
	Sowinski, Henry No. 2	Small	1.0/2.0	NA	NA
	Sugar Camp	Large	6.0/10.0	Low	
	Lower Nine Mile	Large	9.0/13.0	Low	NA
Three Lakes	Rice Lake	Small	1.0/3.0	NA	NA
	Burnt Rollways	Large	9.0/13.0	Significant	NA
	Seven Mile	Large	6.0/10.0	Low	
	Range Line Lake Dam	Small	2.0/8.0		
	Scott Creek	Large	7.0/11.0	Low	06/20/89
	Maple Lake	Large	7.0/12.0	Low	10/25/01
	Thunder Lake	Small	2.8/4.1	Low	08/22/02
Woodboro	Oneida Lake	Small	1.0/2.0	Low	
	Hancock Lake	Large	6.0/11.0	Low	10/10/02
Woodboro	Jennie Creek	Small	6.0/8.0	Low	
Woodruff	Fish Hatchery	Large	5.0/7.2		
	Gilmore Lake	Small	1.0/4.0	Low	

Vulnerability Assessment:

Oneida County has four dams that have a high hazard rating, and two that have a significant hazard rating. Only four of the seven dams have Emergency Action Plans developed. The dams with developed plans include Willow River Reservoir, Rainbow Reservoir, and the Rhinelander (Rhinelander Hydroelectric Project). The Little Rice River (Killarney Lake Dam), and the Hat Rapids Dam, which have a low risk rating developed an Emergency Action Plan.

Areas located downstream from existing dams are more vulnerable to a dam failure then other areas of the County. The Towns of Little Rice, Newbold, Minocqua and the City of Rhinelander all have dams within their jurisdiction that are assigned a High Hazard rating.

Willow River Reservoir:

The Willow Development is located on the Tomahawk River, near Hazelhurst in Oneida County. The Willow Dam discharges into the Rice Reservoir. The project is composed of a concrete spillway with three tainter (radial) gates, a dike on each side of the spillway, and two detached dikes located around the reservoir. The reinforced concrete spillway structure is founded on timber piles with sheet piling around the perimeter.

Adjacent dikes include one to the right and one to the left, both approximately 300 feet long, with a maximum height of approximately 30 ½ feet. Willow Dam Road, a town road, passes along the crest of the dike, which is 16 feet wide.

The reservoir is operated to provide uniform flow in the Wisconsin River. Headwater elevation range between 1,529.35 feet (NGVD) and 1,510.85 feet (NGVD), creating a head of at most 25 feet and at least 3 feet above tailwater levels. At full-pond, the surface area is 6,392 acres and gross storage is 2924 mcf (67,126 acre-feet). At minimum elevation, the surface area is 858 acres and gross storage is 115 mcf (2,640 acre-feet).

Downstream structures and house include the following:

- 50 houses and cottages along the Willow Dam Road, about 1 ½ to 1 ¼ river miles downstream on the west side of the Tomahawk River.
- About 30 houses and trailers at Little Rice Resort, near the CTH “Y” bridge, about 2 ½ to 3 river miles downstream
- Swamp Lake Road Bridge, about 10 river miles downstream
- Prairie Rapids Road Bridge, about 17 river miles downstream
- Rice Reservoir Dam, about 21 river miles downstream, in the Town of Bradley, Lincoln County

Rainbow Reservoir:

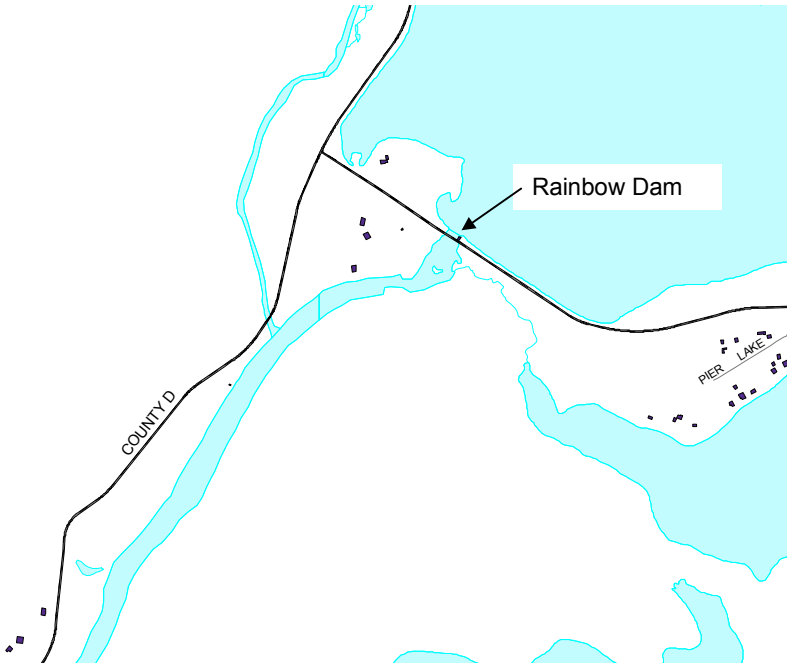
The Rainbow Development is located on the Wisconsin River, near Lake Tomahawk in Oneida County. The project is composed of a concrete spillway with five tainter (radial) gates, an abandoned powerhouse, a dike on each side of the spillway, and four detached dikes located around the reservoir. The spillway structure is founded on timber piles.

Adjacent dikes face downstream, the right dike is approximately 1,000 feet long and the left dike is approximately 1,150 feet long. The maximum height is approximately 32 feet, and County Highway "D" passes along the crest of the dike, which is 24 feet wide.

The reservoir is operated to provide uniform flow in the Wisconsin River. Headwater elevations range between 1,597.05 feet (NGVD) and 1,575.05 feet (NGVD), creating a head of at most 25 feet and at least 3 feet above tailwater levels. At full pond, the surface area is 4,164 acres and gross storage is 2004 mcf (46,005 acre-feet). At minimum elevation, the surface area is 175 acres and the gross storage is 17 mcf (390 acres-feet).

Downstream houses and structures include the following:

- 10 houses on the west side of Hwy D about .9 river miles downstream
- About 50 houses neat a bridge on River Rd. about 2 ½ to 3 ½ river miles down stream
- McNaughton Bridge, about 9.5 river miles downstream
- Rhinelander Dam, about 18.5 river miles downstream



Rhinelander:

The dam and power plant that comprise the Rhinelander Hydroelectric Project are located on the Wisconsin River within the city limits of Rhinelander. The project structures consist of a power canal inlet structure, a power canal with a tainter gate spillway in the canal embankment, two short earth embankments, a concrete spillway with two vertical-lift roller gates (Phillips Street Spillway), and a powerhouse. The dam has a maximum height of approximately 24 feet.

The power canal is 60 feet wide and 965 feet long. The power canal inlet structure is approximately 60 feet long and contains 14 vertical wooden lift gates, which are normally kept in the open position. Natural ground, earth embankments, and stone masonry wall sections border the power canal. The power canal contains a tainter gate that can release flow from the power canal back to the Wisconsin River without passing it through the powerhouse.

The Phillips Street spillway is a concrete structure with two 10.7 foot wide steel vertical lift gates. Short earth embankments on either side of the spillway connect it with the power canal inlet structure and riverbank. The Phillips Street Bridge crosses the river spillway, clearing the spillway and earth embankments by approximately 2 feet. The crest of the embankments in this area is approximately 1556.5 feet.

The reservoir formed by the Rhinelander Dam has normal headwater elevation of 1555.45 feet, plus or minus .3 feet. It has a surface area of 3,576 acres, and storage volume of 21,500 acre-feet at normal pool. Average flow is about 800

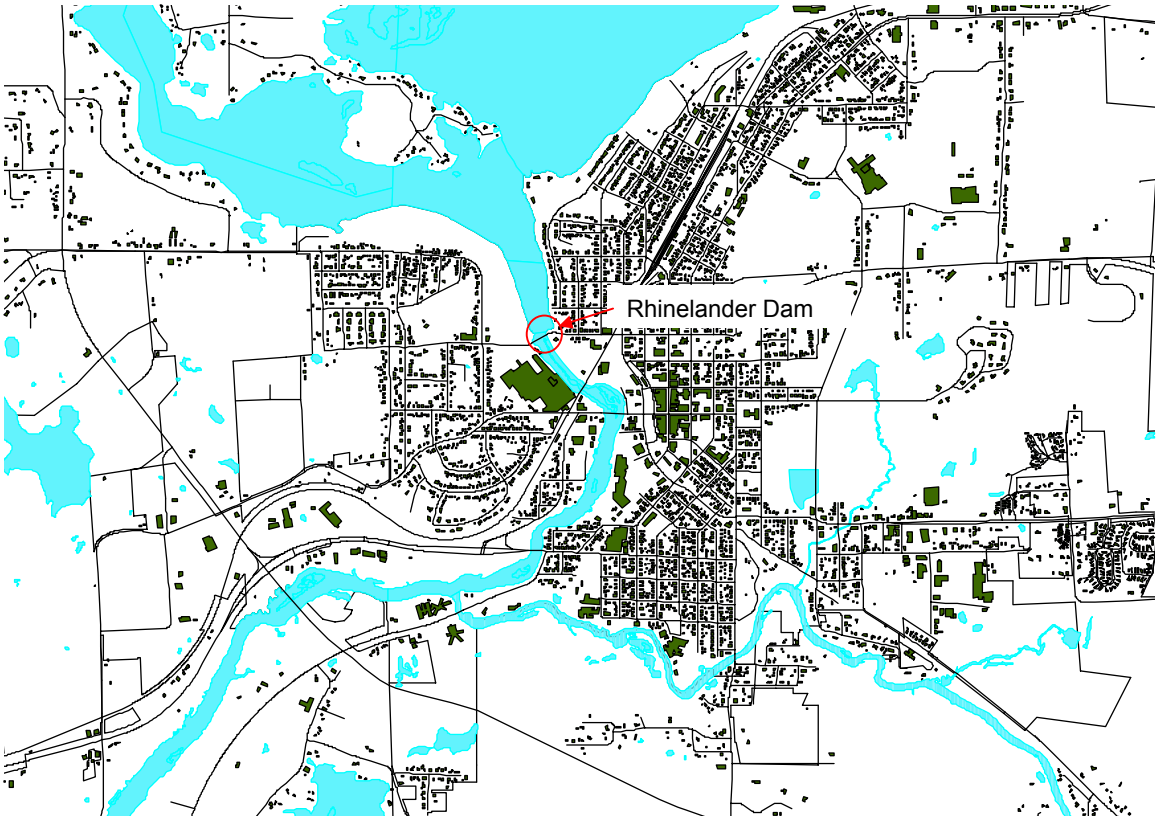
cubic feet per second (cfs). The powerhouse contains three horizontal-shaft generating units with a combined rating of 2,120 kilowatts (kW).

The Rhinelander Dam and powerhouse are manually operated by a run-of-river facility. Utility department operators are on duty at the hydro project 24 hours a day, 365 days a year. The operator could detect a failure from either direct observation, an abrupt change in monitored headwater or tailwater levels, an unexpected change in generation, or a report from an outside source.

Headwater and tailwater elevations are monitored and are continuously recorded on a chart. Electrical power generation levels are continuously monitored from the turbine room. An unexpected drop in generation due to a decreasing headwater elevation and raising tailwater elevation would alert the operator, who would take action to identify the cause.

The structures at greatest risk from the failure of the Rhinelander Hydroelectric Project are residences located on the east side of the Wisconsin River. One lies about 100 feet downstream from the Davenport Street bridge on Young Street, and several others are located on Marshall, Reik, and Sutliff Streets about one-half mile downstream from the dam. Downstream bridges would not be flooded.

Although the water surface elevation of the Pelican River would increase slightly, significant flooding of residences is not expected to occur. Post-failure water levels could be equal to the lower level elevation of St. Mary's Hospital (previous location), which is located at 1044 Kabel Avenue near the Pelican River. However, the first floor elevation of the hospital is well above the anticipated water levels. The Peterson Health Care Center, which is located near the confluence of the Pelican and Wisconsin Rivers, is not expected to be flooded, but it lies within 200 feet of the anticipated limits of flooding. The health care facility has established procedures to protect residents in the event of dam failure.



Future Probability of Potential Dollar Losses – Dam Failure:

Due to the significant number of dams and particularly large dams with high hazard ratings, dam failure is an important hazard event to plan for in Oneida County. However, based on past experience, the actual probability of a major dam failure is very low. Considering the lack of historical problems along with the historic flood frequency data, probability of a dam failure might be estimated at (less than) 0.03 or 3 percent chance in a given year, although this is not completely accurate, since failure of the dam maybe avoided by human intervention.

Estimated future dollar losses for dam failure is problematic as well. If the Willow development failed, approximately 80 structures would be located in the affected area. Likewise, if the Rainbow Reservoir failed approximately 60 structures would be affect. The Rhinelander Hydroelectric Dam failure would result in a larger number of structures within the affected area. Table 20 shows the potential losses from the Willow and Rainbow Reservoir Dams.

Table 20	Fair Market Value of Vulnerable Structures		
Dam	# of Structures	Average Value	Total Value
Willow Reservoir	80	$57,471	$4,597,680
Rainbow Reservoir	60	$99,810	$5,988,600

Additional property damage may result from failures of dams that do not have an Emergency Action Plan developed for them. In most cases smaller dam failures will result in minimal if any property damage.

Hazard: Winter Storms

Hazard Analysis:

Winter storms can vary in size and strength and include heavy snowstorms, blizzards, freezing rain, sleet, ice storms, and blowing and drifting snow conditions. Extremely cold temperatures accompanied by strong winds can result in wind chills that cause bodily injury such as frostbite and death.

True blizzards are rare in Wisconsin. They are more likely to occur in the northwestern part of the state than in south-central Wisconsin, even though heavy snowfalls are more frequent in the southeast. However, blizzard-like conditions often exist during heavy snowstorms when gusty winds cause severe blowing and drifting of snow. Heavy snow and ice storms have been part of nearly every winter in Oneida County.

History of Winter Storms in Oneida County:

The NCDC has reported 55 major winter storm events for Oneida County since 1993. All of theses storms contained some form of snow, sleet, freezing rain, or slippery road conditions.

Most recently, a February 19, 2004 winter storm produced 10 to 13 inches of snow across north-central and northeast Wisconsin.

On April 16th, 2003 the north-central part of the state was affected by a winter storm that produced significant freezing rain and sleet. Dozens of traffic accidents were reported on icy roads. The weight of the accumulated freezing rain downed trees, tree limbs and power lines. A total of 15,000 customers from one utility company were still without power on the morning of April 18th. Oneida County Emergency Management in conjunction with the American Red Cross opened a shelter for people without power. In addition two 911-radio repeaters lost power and operated on back-up battery or generator power for an extended period of time.

From 1995 six-winter storms affected Oneida County producing more than 10 inches of snow. An additional six ice storm event affect Oneida County since 1995.

Vulnerability Assessment:

Winter storms present a serious threat to the health and safety of affected citizens and can result in significant property damage. Heavy snow or accumulated ice can cause the structural collapse of buildings, down power lines, or isolate people from assistance or services. The following is a list of things that may be adversely affected by a winter storm. Much of these community assets can be referenced in Part II.

- Infrastructure – Operation of emergency services, operation of public facilities and schools.
- Utilities – Down power and telephone lines
- Transportation – Automobile accidents, roadway plowing, salting/sanding
- Residential – Roofs
- Business – Commerce

There are specific areas in the county that have unusual risks. Winter storms cover a broad area and are a region-wide concern.

Future Probability and Potential Dollar Losses – Winter Storms:

Based upon historical frequency, Oneida County can expect 5 major winter storms per year on average. In other words, the probability is 1.00 or 100 percent chance in a given year.

Estimating potential future losses for winter storms is difficult. Damages and losses are typically minor and widespread. Minor auto accidents and additional snow removal time are typical impacts of winter storms, and such claims are not aggregated or tracked. Winter storms, however, do have the potential to be extremely disastrous, particularly in the case of ice storms. NCDC has no historical dollar loss listed for the winter storm events recorded.

Hazard: Drought

Hazard Analysis:

A drought is an extended period of unusually dry weather, which may be accompanied by extreme heat (temperatures which are 10 or more degrees above normal high temperature for the period). There are basically two types of droughts in Wisconsin: agricultural and hydrologic. Agricultural drought is a dry period of sufficient length and intensity that markedly reduces crop yields. Hydrologic drought is a dry period of sufficient length and intensity to affect lake

and stream levels and the height of the groundwater table. These two types of drought may, but do not necessarily, occur at the same time.

Droughts, both agricultural and hydrologic, are relatively common in the state. Small droughts of shortened duration have occurred approximately every ten years since the 1930's.

History of Drought in Oneida County:

The drought of 1976-1977 was most severe in a wide band stretching from north to south across the state. Stream flow measuring stations recorded recurrence intervals from 10 to 30 years. Agriculture losses during this drought were set at $624 million. 64 counties in the state were declared federal drought areas and deemed eligible for assistance under the Disaster Relief Act. Oneida County was one of the 64 counties eligible for assistance.

In 1986 Oneida County was eligible for Emergency Physical and Production loss loans as a result of frost, drought and excessive hot days. Oneida County suffered a 60% pasture loss and 50% hay crop loss due to drought.

Oneida County experienced the 1987-1988 droughts with the rest of the Midwest. It was characterized not only by below level precipitation, but also persistent dry air and above normal temperatures. Stream flow measuring stations in the state indicated a recurrence interval of between 75 and 100 years. The drought occurred early in the growing season and resulted in a 30 to 60 percent crop loss, with agricultural losses set at $1.3 billion for the state. No statistics were available for the amount of crop lost in Oneida County, but 52 percent of the state's 81,000 farms were estimated to have losses of 50 percent or more, with 14 percent estimated having losses of 70 percent or more.

NCDC recorded another drought event that affected Oneida County during the month of March in 1999. It was a very dry month across northeast Wisconsin with numerous grass fires. Many locations received less than a quarter inch of precipitation for the month. No measurable precipitation was recorded for Green Bay during the last 22 days of the month.

Vulnerability Assessment:

Droughts can have a dramatic effect on the potato farms located throughout Oneida County. As a result of droughts, farmers have to irrigate crops in place to make up for necessary rainfall. Irrigation can negatively impact the environment by drawing water that naturally goes to aquifers and surface water. Drought can exacerbate the problem when high withdrawal rates versus little precipitation deplete water bodies and aquifer supplies, therefore decreasing drinking water supplies, drying streams, and hindering aquatic and terrestrial wildlife. During severe droughts, some wells-mainly private-will go dry.

Droughts can trigger other natural and man-made hazards as well. They greatly increase the risk of forest fires and wildfires because of extreme dryness. In addition the loss of vegetation in the absence of sufficient water can result in flooding, even from average rainfall, following drought conditions.

The following is a list of things that may be adversely affected by a drought. Much of these community assets can be referenced in Part II.

- Infrastructure-Municipal water supplies
- Surface Water- Groundwater reserves, recreation, and wildfire
- Forest
- Agricultural-Crops, livestock

The areas most susceptible to drought conditions would be agricultural towns. Agricultural land is scattered throughout the county but largely in the Towns of Sugar Camp, and Stella.

Future Probability and Potential Dollar Losses-Drought

Based on frequency of past events, Oneida County can expect a drought every 5.6 years, which is a probability of .18 or an 18 percent chance each given year. Significant severe drought is somewhat less common, affecting Wisconsin once about every 15 years.

Drought is another hazard lacking good loss figures at the county level. However, a look at aggregate data for the last two droughts can give some indication of potential impact. The last two major droughts in Wisconsin resulted in losses of $9.6 million (1976-1977) to $18 million (1987-1988) per county on average.

Hazard: Forest Fires and Wildfires

Hazard Analysis:

A forest fire is an uncontrolled fire occurring in a forest or in woodlands outside the limits of incorporated villages or cities. A wildfire is any instance of uncontrolled burning in brush, marshes, grasslands or fields lands. For the purpose of this analysis, both of these kinds of fires are being considered together. The causes of these fires include lightning, human carelessness and arson.

Forest fires and wildfires can occur at any time of the day and during any month of the year, but the peak season in Wisconsin is normally from March through November. The season length and peak months may vary appreciable from year to year. Land use, vegetation, amount of combustible materials present and

weather conditions such as wind, low humidity and lack of precipitation are the chief factors.

History of Forest Fires in Oneida County:

The Wisconsin DNR Fire Dispatch Group in Woodruff maintains a database of forest fires for Oneida County. From 1999 to 2000, there has been an annual average of 30 fires that have burned 25 acres in the County.

The National Climatic Data Center does not list any wildfires or forest fires for Oneida County. From the database maintained by the DNR Fire Dispatch Group five significant events have been reported. These events occurred between May of 1986 and July of 1992, three of them occurring in July of 1992. Table 21 shows the date, area, size, and suppression cost.

Table 21	Significant Forest / Wildfires in Oneida County		
Date	**Area(Name)**	**Size (acres)**	**Suppression Costs**
05/04/86	Skunk Lake	51	$6,571
03/31/90	Tank Lake	150	$7,114
07/26/92	Monico	68	$3,523
07/26/92	Monico	77	$3,514
07/29/92	Monico	24	$4,708

Source: Wisconsin Department of Natural Resources

Vulnerability Assessment:

Oneida County has 300,000 acres of forestland, or about 38 percent of the area, scattered throughout the County. The potential for property damage from fire increases each year as more recreational and retirement structures are developed on wooded land and increased numbers of people use these areas.

Some of the more critical areas in the County are homes located near industrial forests. These areas are fire prone because of the probability of dried and combustible vegetation.

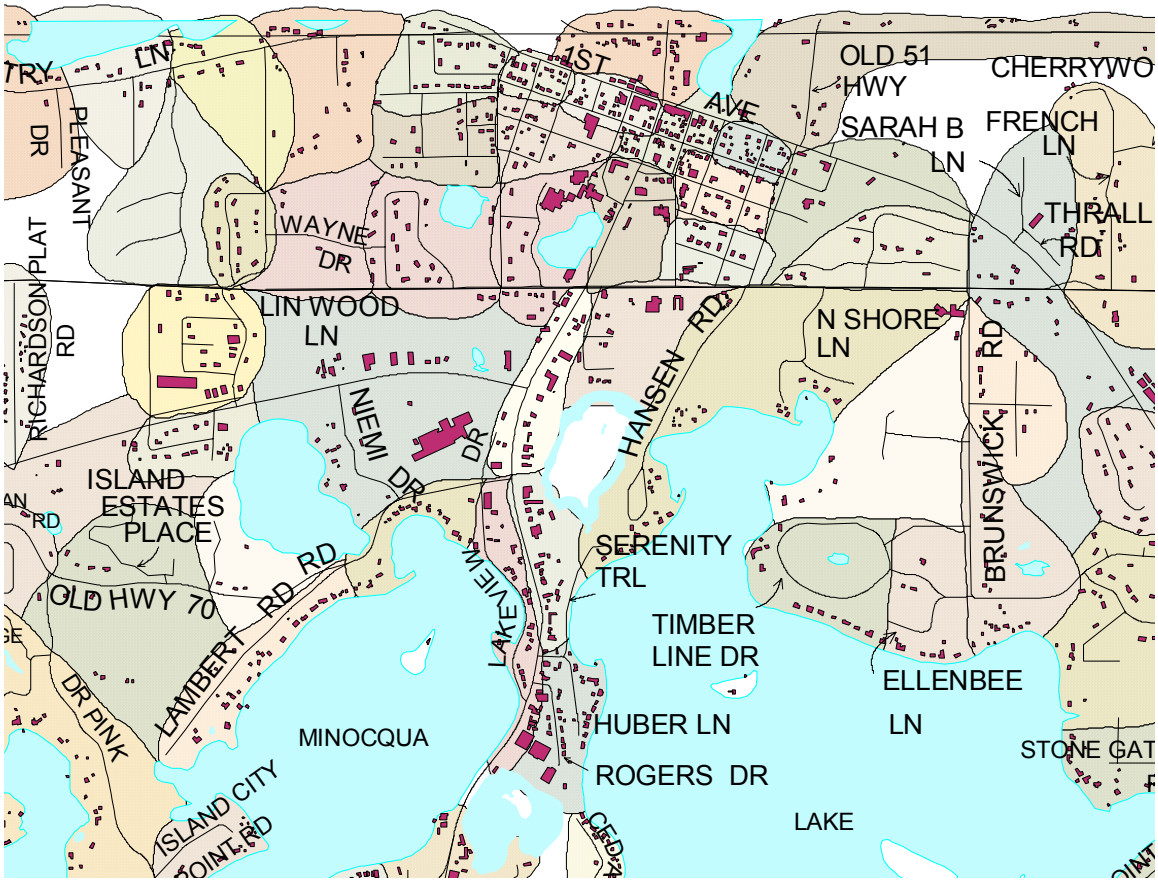
Rural buildings may be more vulnerable because of lack of access. Access to buildings off main roads is sometimes long, narrow driveways with minimal vertical clearance making it hard for emergency vehicles to combat fires. These buildings also may not have much of a defensible space because of minimal space between the structures themselves and highly flammable vegetation.

Areas that are more vulnerable to fire because of their proximity to industrial forests include the Town of Nokomis, and the Town of Woodruff. Both areas have a considerable amount of Wild Land Urban Interface (WUI) which means that structures are built near industrial forests. The southern portion of the Town of Nokomis, on the north side of Nokomis Lake, represents the highest danger

area. The area of concern in the Town of Woodruff is located north of Lake Minocqua near Vilas County.

The Wisconsin Department of Natural Resources, the Oneida County Emergency Management Department, the Oneida County Land Information Department and the North Central Wisconsin Regional Planning Commission worked together to identify forest and wild fire zones. This project reduces the risk to existing structures by providing fire service with pre-planned response zones. Fire service units can be immediately assigned to protect structures located in these zones. Map 14 demonstrates the Forest and Wild Fire Zones developed near Woodruff, north of Lake Minocqua. Forest and Wild Fire Zones have been developed for the entire County and incorporates most, if not all, structures.

Map 14: Forest and Wild Fire Zone Map



Source: Wisconsin Department of Natural Resources, Oneida County Land Information Department, and North Central Wisconsin Regional Planning Commission.

Campgrounds are a concern because of campfires. Oneida County has five state campgrounds, federal campgrounds, and numerous privately owned campgrounds throughout the County. The state owned campgrounds are shown on Map 9.

Future Probability and Potential Dollar Losses - Forest/Wild Fires:

Forest and wild fires are relatively common occurrences in Oneida County. In recent years, there has been an average of 30 fires per year in the County burning 25 acres total on average each year. These fires are typically contained rapidly and remain small, so that each has a minimal impact. More substantial fires are rare in Oneida County and include the events listed in Table 21.

Because of the relatively small impact of typical individual fires in the County, loss data is not tracked. This makes it difficult to develop an estimate of potential future dollar losses. However, with 30 fires per year, the County should expect some fires to "get out of hand" and likely cause significant property damage. In addition to property damages and possible health hazards, suppression costs may become substantial as well. The five previous fire events listed in Table 21 generated a suppression cost of $25,430. Oneida County can expect on average a suppression cost of approximately $5,086 for larger fire events.

Hazard: Hazardous Materials Incident

Hazard Analysis:

This type of hazard occurs with the uncontrolled release or threatened release of hazardous materials from a fixed site or during transport that may impact public health and safety and/or the environment.

Under the Emergency Planning Citizen Right to Know Act (EPCRA), a hazardous material is defined as any chemical that is a physical hazard or health hazard [defined at 29 CFR 1910.1200(c)] for which the Occupational Health and Safety Administration (OSHA) requires a facility to maintain a Material Safety Data Sheet (MSDA). Under EPCRA there is no specific list of hazardous materials. An extremely hazardous substance (EHS) is defined as one of 356 substances on the United States Environmental Protection Agency (EPA) list of extremely hazardous substances, identified at 40 CFR Part 355.

EPCRA of 1986 also known as SARA Title III, brings industry, government and the general public together to address emergency planning for accidental chemical releases. The emergency planning aspect requires communities to prepare for hazardous chemical releases through emergency planning. This provides essential information for emergency responders. The community right-to-know aspect increases public awareness of chemical hazards in their community and allows the public and local government to obtain information about these chemical hazards.

Fixed Facilities

As of January 2004, ten facilities reported that they had an extremely hazardous substance present at any one time in the amount equal to or exceeding the chemical-specific Threshold Planning Quantity (TPQ). Of these facilities, four indicated having substances subject to EPA reporting requirements. Most of the substances are used for retail and paper production.

The most common extremely hazardous substances at fixed facilities in the County are:

1. Sulfuric Acid
2. Anhydrous Ammonia
3. Chlorine

Highway

Trucks carry the bulk of hazardous materials to and through the County. Regular shipments of gasoline, propane, acid and other substances are delivered across Wisconsin. Every roadway in the County is a potential route for hazardous material transport, but major transportation routes are Federal and State Highways 51, 45,17, and 32 (See Map 3 Transportation Routes in Part II).

Railroad

The Canadian National Railroad another mode for the transportation of hazardous material, provides 41 miles of track through Oneida County (see Map 3). Although trucks transport most of the hazardous materials in the state and U.S., rail can carry significant larger loads of hazardous materials.

No statistics are available regarding the types of extremely hazardous substances transported annually throughout Oneida County, but the potential exists for the transportation of any extremely hazardous substance listed on the U.S. EPA's list or OSHA's toxic and Hazardous Material List. These substances are transported in containers that range form ten-ounce agricultural packages to 196,000 pounds of rail car quantities.

Pipeline

ANR Pipeline Company provides a pipeline to move petroleum through the County. It runs 7 miles from the southern part of the County to the City of Rhinelander, and then 20 miles from the City of Rhinelander to the eastern County line to Forest County.

History of Hazardous Materials Incidents in Oneida County:

Since 1977 Oneida County recorded 70 hazardous material spills. Most of these spills consisted of small amounts of petroleum product that did not meet the

reporting requirements. In most cases these incidents involved the response of a local municipal fire department.

Approximately 22 of the 70 hazardous material spills since 1977 were significantly more serious. Four of the 22 spills occurred at a fixed planning facility. Most of the 22 spills required a response by the County Level B Hazardous Material Response Team. The following Table 22 demonstrates the date, location and description of the spills.

Table 22	Significant Hazardous Material Spills		
Date	**Location**	**Description**	**Cost**
04/12/77	Hazelhurst	Gasoline 7,000 gallons	N/A
06/29/79	Crescent	Ethyl Acrylate – 2containers	N/A
02/12/81	Woodruff	LP gas tanker truck	N/A
08/14/81	Newbold	Gasoline truck fire, 550 gallons	N/A
07/05/84	Rhinelander	Chlorine leak at Waste Water Treatment Plant	N/A
07/19/84	Rhinelander	Chlorine leak a railroad tanker at the Paper Mill	N/A
05/07/92	Rhinelander	Anhydrous Ammonia leak at the Paper Mill	N/A
08/26/92	Lake Tomahawk	Spill of an unknown material	N/A
04/15/98	Pelican	Unknown material (1-55 gal drum 2-30 gal drum)	$11,112.32
06/10/98	Rhinelander	Diesel Fuel spill into storm drain	$6,231.71
02/16/99	Rhinelander	Hydrochloric Acid Incident (no spill)	$2,258.13
03/15/99	Rhinelander	Oil spill 200-300 gallons	N/A
04/28/99	Stella	Pesticide spill 3 gallons	$4,219.25
05/18/01	Rhinelander	Anhydrous Ammonia leak at the Paper Mill	N/A
05/31/01	Rhinelander	Petroleum spill into the drain at Twist Drill	N/A
07/11/01	Rhinelander	Sodium Hydroxide spill 150 gallons	N/A
08/16/01	Monico	Petroleum spill	$11,416.50
12/12/01	Crescent	Mineral Oil under 162 gallons	$3,864.19
05/24/02	Stella	20 gallons hydraulic fluid/5-10 gallons diesel fuel	$3,450.00
07/10/03	Rhinelander	Mercury Spill	$222.97
05/12/04	Rhinelander	Diesel Fuel leak as a result of a damaged tank	$982.76

Source: Oneida County Emergency Management

Vulnerability Assessment:

Counties in Wisconsin, including Oneida County have Local Emergency Planning Committees (LEPC) that is set up in accordance with the federal legislation and is responsible for implementation of EPCRA at the county level. The County Emergency Management Director is a member of LEPC to ensure continuity and coordination of emergency response planning.

To meet the requirements of Title III of EPCA, LEPC developed the County Hazardous Material Response Plan. This plan establishes policies and procedures for responding to hazardous material incidents. LEPC is required to review, test, and update the plan every two years. Methods for notification and reporting an incident are outlined in the plan. This plan also works in conjunction with the County Emergency Operations Plan (EOP) where alert to the public, communications, and response procedures are outlined. The plan is tested

through tabletop, functional, and full-scale exercises and actual response situations.

To provide a high level of hazardous material response capabilities to local communities, Wisconsin Emergency Management contracts with eight Regional or "Level A" Hazardous Materials Response Teams. The Regional team for Oneida County is located in Wausau, Marathon County. The Regional Response Team may be activated for an incident involving a hazardous materials spill, leak, explosion, injury or the potential of immediate threat to life, the environment, or property. The Regional or "Level A" Teams respond to the most serious spills and releases requiring the highest level of skin and respiratory protective gear. This includes all chemical, biological, or radiological emergencies.

County or "Level B" Teams respond to chemical incidents which require a lower level of protective gear but still exceed the capabilities of standard fire departments. Currently, there are 36 counties that have a "Level B" team. Those teams may provide assistance to surrounding counties and are approved by the Local Emergency Planning Committees. Oneida County currently has a county or "Level B" Hazardous Response Team. The "Level B" team is made up of fire personnel from the Rhinelander Fire Department and area volunteer fire departments. In addition to the county or "Level B" Hazardous Response Team, members from the Rhinelander Fire Department are also a "Level A" Chemical Assessment Team (CAT) for the Wausau Regional or "Level A" Team. The Oneida County HazMat Team has the capabilities to respond to incidents that require the highest personal protection and respiratory protection available.

All the fixed planning facilities in Oneida County are located within the City of Rhinelander. Based on the location of the fixed facilities, the City of Rhinelander has a higher probability of a chemical release. In addition, transportation of hazardous chemicals too and from these fixed facilities creates an increased chance of transportation related accidents.

Future Probability & Potential Dollar Losses-Hazardous Materials Incidents:

Based upon historical data presented (frequency of past events). Oneida County can expect a significant hazardous material spill every 1.3 years on average. This equates to a probability of .78 or about 78 percent chance each year. In addition to a significant event, the county can expect numerous smaller spills that often go unreported. These events still require resources and the response of local fire departments.

Historical data from hazardous material spills that have a known response cost, was used to determine an average response cost for a hazardous material spill. Nine incidents have associated response costs ranging from $222.97 to $11,416.50. Using this data, Oneida County can expect an average hazardous material response cost of $4,861.98. This potential cost is only reflective of the

Hazardous Material Response Team; additional cleanup and disposal costs may apply. Costs of smaller, less significant spills are usually absorbed by Fire Department and other first responder budgets. These costs are hard to estimate as they are seldom reported and recorded.

Introduction

As defined by DMA2K, hazard mitigation is any action taken to reduce or eliminate the long-term risk to human life and property from hazards. Part IV of the Oneida County All Hazard Mitigation Plan describes the mitigation goals and actions by Oneida County and its local units of government for each hazard identified in Part III. The intention is to reduce or avoid long-term vulnerability to the identified hazards.

According to FEMA, hazard mitigation refers to any sustained actions taken to reduce or eliminate the long-term risk to human life and property from hazardous conditions.

The Mitigation Strategies are prioritized in the order given to the Hazards in Part III of this plan. The cost-benefit review of each mitigation project will be conducted at the time of implementation. As extensive as the list is, it does not preclude other natural and man-made hazards that can occur in the County. Furthermore, for those hazards that are listed below, it should be noted that the range of mitigation actions and projects is more extensive than this.

Following each hazard is a list of mitigation goals and possible action projects for Oneida County and its local units of government. It was compiled from a number of mitigation plans and reports, government agencies, the County Emergency Management Director, Local Emergency Planning Committee, other County Departments, local units of government, and suggestions from the public. A summary of the recommended mitigation strategies is provided at the end of this section as table 24.

Hazard: All Hazards:

Goal:
Prepare and protect residents and visitors from all hazards.

Action:
The County should continue to promote an increased use of National Oceanic and Atmospheric (NOAA) weather radios. NOAA Weather Radio (NWR) is a nationwide network of radio stations broadcasting continuous weather information directed from nearby National Weather Service office. NWR broadcasts National Weather Service warnings, watches, forecasts and other hazardous information 24 hours a day. NWR is not only for thunderstorms, but also for other hazards as well as making it a single source for comprehensive weather and emergency information. NWR also broadcasts warnings and posts event information for all types of hazards-both natural and environmental (such as chemical release or oil spills).

Participating Jurisdictions:
Lead agency will be Oneida County Emergency Management. Jurisdictions participating in this action will include: Town of Minocqua, Town of Woodruff, and the Town of Three Lakes.

Action:
The County should continue to add and update information on an Emergency Management Department link web site. The web site should contain information describing the types of natural and man-made hazardous disasters in the County and how to respond when a hazard threatens. The site should also contain information on ordinances pertaining to hazards, locations of tornado shelters, and links to sites such as burning and weather conditions.

Participating Jurisdictions:
Lead agency will be the Oneida County Emergency Management Department. The only directly participating jurisdiction will be Oneida County.

Hazard: Severe Thunderstorms

Goal:
Minimize the threat to human life and property damage caused by associated high winds and lightning.

Action:
The County should promote the planting of windbreaks to protect farmsteads, buildings, and open fields from high winds. Established trees and shrubs can slow wind on the downwind side of a windbreak for a distance of 10 times the height of the trees. The windbreak can also reduce soil erosion, act as snow fences, provide wildlife food and cover, and offer a number of other benefits.

There are a number of resources area farmers use to help install and pay for windbreaks. Both the Central Wisconsin Windshed Partnership and the County Land and Water Conservation Department provide assistance to help establish windbreaks. Windbreaks can also be established through the Conservation Reserve Program (CRP), Conservation Enhancement Reserve Program (CREP), Conservation Security Program (CSP), and Environmental Quality Incentive Program (EQIP) from the USDA Natural Resource Conservation Service (NRCS).

Participating Jurisdictions:
Lead agency should be the Oneida County Land Conservation Department.

Projects Cost:
Costs Vary
Action:

A review of local building codes should be conducted to determine if revisions are needed to improve the structures ability to withstand greater wind velocities. The building code provisions may include requirements for construction methods that employ cross-bracing, anchoring of walls to foundation, and anchoring roof rafters to walls (also mitigates tornado risk) and measures to provide wind protection and retrofits for vulnerable features (windows, garage doors, patio doors, double-wide entry doors, siding, and bracing for walls and rafters). A document was created by FEMA and WEM to help provide adequate and inexpensive wind mitigation measures to local officials, residents, and business owners prevent future wind damages to residential, commercial, and public structures. This document (provided on the WEM website) should be referenced when making changes to building codes.

Participating Jurisdictions:
Lead agencies should be Oneida County Planning and Zoning department.

Project Cost:
Covered by Planning and Zoning annual budget.

Project Timetable:
Ongoing

Action:
The County should continue to promote the use of NOAA Weather radios as a primary notification system to forward weather advisories to the general public and special locations. The County should continue to evaluate the different types of notification systems currently being used along with new types of notification technology.

Participating Jurisdictions:
Lead agency should be Oneida County Emergency Management Department.

Project Cost:
Approximately $1,000 for the inventory of NOAA Weather Radios

Action:
The County should continue and promote the training of Law Enforcement Officers, Municipal Fire Department Members, Emergency Medical Services Personnel, and Municipal First Responders in the identification of dangerous weather patterns. The National Weather Service provides this type of training through their Weather Spotter Program. Oneida County should continue to sponsor this training annually.

Participating Jurisdictions:
Lead agencies should be the Oneida County Emergency Management Department and the National Weather Service (Green Bay).

Project Cost:
National Weather Service budget

Project Timetable:
Annually.

Hazard: Tornados

Goal:
Protect health, safety, and welfare of county residents and visitors. Along with future loss of property associated with tornados.

Action:
The County and local units of government should identify buildings that will provide protection to the public in the event of a tornado. There are a number of buildings in the County that can accommodate people during a tornado.

Participating Jurisdictions:
Lead agency should be the Oneida County Emergency Management Department. Participating agencies should include all municipal governments located in Oneida County.

Project Cost:
Covered by the Emergency Management annual budget.

Timetable:
Ongoing.

Action:
Upon identifying existing buildings that could provide protection, the County and its local units of governments should identify areas that are deficit in tornado shelters. Concrete safe rooms should be constructed in these areas. Structures available to the public during tornado warnings should be publicized by a number of sources such as area newspapers, signs, county maps, and the county web site. Funding for the construction of safe rooms could be made available through the Wisconsin Department of Commerce's Committee Development Block Grant (CDBG).

Participating Jurisdictions:
Lead agency should be the Oneida County Emergency Management Department. Participating agencies should include all municipal governments located in Oneida County.

Project Cost:
Costs varies, utilization of the Dept. of Commerce CDBG funding assistance program.

Project Timetable:
Ongoing.

Action:
The County should require and promote construction standards and techniques to strengthen public and private structures against severe wind damage. Communities can require or encourage wind engineering measures and construction techniques that may include structural bracing, straps and clips, anchor bolts, laminated or impact-resistant glass, reinforced pedestrian and garage doors, window shutters, waterproof adhesive sealing strips, or interlocking roof shingles. Also, architectural design can make roofs less susceptible to uplift.

Participating Jurisdictions:
Lead agency should be the Oneida County Planning and Zoning Department. Participating agencies should include all municipal governments located in Oneida County.

Project Cost:
Covered by the Planning and Zoning Department annual budget

Project Timetable:
Ongoing.

Action:
The County should encourage builders and owners of manufactured and mobile homes to use tie-downs with ground anchors. Using these devices can reduce the risk to mobile and manufactured home damage.

Participating Jurisdictions:
The lead agency should be the Oneida County Planning and Zoning Department. Participating agencies should include all municipal governments located in Oneida County.

Project Cost:
Covered by the Planning and Zoning Department annual budget

Timetable:
Ongoing.

Action:
The County should continue to promote the use of NOAA Weather radios as a primary notification system to forward weather advisories to the general public and special locations. The County should continue to evaluate the different types of notification systems currently being used along with new types of notification technology.

Participating Jurisdictions:
Lead agency should be Oneida County Emergency Management Department.

Project Cost:
Approximately $1,000 for the inventory of NOAA Weather Radios

Project Timetable:
Ongoing.

Action:
The County should continue and promote the training of Law Enforcement Officers, Municipal Fire Department Members, Emergency Medical Services Personnel, and Municipal First Responders in the identification of dangerous weather patterns. The National Weather Service provides this type of training through their Weather Spotter Program. Oneida County should continue to sponsor this training annually.

Participating Jurisdictions:
Lead agencies should be the Oneida County Emergency Management Department and the National Weather Service (Green Bay).

Project Cost:
National Weather Service budget

Project Timetable:
Annually.

Hazard: Flooding

Goal:
Lessen the impact floods have on people, property, and the environment.

Action:
The County and local units of government should incorporate floodplain management in comprehensive planning. Determining and enforcing acceptable land uses through planning and regulation may not prevent inevitable flooding in flood-prone areas, but planning and regulation can alleviate the risk of damage by limiting exposure in such hazard areas.

Participating Jurisdictions:
Lead agency should be the Oneida County Planning & Zoning Department. Participating agencies should include all municipal governments located in Oneida County.

Project Cost:
Covered by the Planning and Zoning Department annual budget.

Project Timetable:
Ongoing.

Action:
The aerial photography that is used with the County Geographic Information System (GIS) should be updated. Updated photography could be used to identify structures that were constructed or demolished in the flood zones. This could serve as an important planning tool.

Participating Jurisdiction:
Lead agency should be the County Land Information Office. Oneida County would be the only directly responsible jurisdiction.

Project Cost:
Unknown at this time

Project Timetable:
2005.

Action:
The County and its municipalities should utilize grants through the Department of Transportation to repair minor flood damage to roadways. Mitigations efforts through this program should reconstruct the flood damage roadways to a point

where future flooding would not cause additional damage. This program can be utilized for minor damage outside a Presidential Disaster Declaration.

Participating Jurisdictions:
Lead agency should be the Wisconsin Department of Transportation. Participating agencies should include all municipal governments located in Oneida County.

Project Cost:
Wisconsin Department of Transportation Flood Damage Aid Program

Project Timetable:
Ongoing

Hazard: Dam Failure

Goal:
Eliminate the loss of life and reduce the risk of property damage in the downstream areas that result from a dam failure.

Action:
Dams that are rated by the Department of Natural Resources (DNR) as a high or significant threat should have Emergency Action Plans developed. Currently four dams in Oneida County have a high rating and two have a significant rating. Three of the four dams with high rating have Emergency Action Plans developed and on file with the Emergency Management Department. The remaining dam located in Minocqua does not have an Emergency Action Plan on file with the Emergency Management Department. The two dams rated as significant do not have Emergency Action Plans on file with the Emergency Management Department.

Participating Jurisdictions:
Lead agency shall be the Oneida County Emergency Management Department along with the jurisdictions that potentially may be involved.

Project Cost:
Dam owners or the Land Conservation Department budget.

Project Timetable:
2005.

Hazard: Winter Storms

Goal:
Create safety awareness information for citizens and travelers of Oneida County to protect them during and after winter storm events.

Action:
The County should encourage the development of snow fences for public safety. Using snow fences or "living snow fences" (rows of trees or other vegetation) can limit blowing and drifting of snow over critical roadway segments. As mentioned previously under "Thunderstorms", assistance can be provided by the County Land Conservation Department and the Natural Resource Conservation Service (NRCS) to develop windbreaks. Windbreaks would be advantageous to the County Highway Department and towns to prevent blowing and drifting on roadways.

Participating Jurisdictions:

Lead agencies should be the County Land Conservation and County Highway Departments. Participating agencies should include all municipal governments located in Oneida County.

Project Cost:
Costs Vary

Project Timetable:
Ongoing

Action:
The County should promote winter hazards awareness, including home and travel safety measures, such as avoiding travel during winter storms. If travel cannot be avoided, having a shovel, sand, warm clothing, food, water, and back-up heating system should be encouraged in vehicles.

Participating Jurisdictions:
Lead agency should be the Oneida County Emergency Management Department. Participating agencies should include all municipal governments located in Oneida County.

Project Cost:
Covered by the Emergency Management annual budget

Project Timetable:
Ongoing

Hazard: Drought

Goal:
Minimize crop loss while maintaining water supplies during times of drought.

Action:
The County should encourage farmers that irrigate to use the Wisconsin Irrigation Scheduling Program (WISP). This research-based program assists growers in determining frequency and amounts of irrigation throughout the growing season. It can be extremely helpful during a drought.

Participating Jurisdictions:
Lead agency should be the Oneida County Land Conservation Department and the County UW-Extension. Oneida County will be the only directly responsible jurisdiction.

Project Cost:
Covered by the UW Extension and Land Conservation Department annual budgets

Project Timetable:
2005

Action:
The County should be prepared on how to inform farmers during times of drought. This could include feed assistance or financial assistance programs and managing crops and livestock during drought conditions.

Participating Jurisdictions:
Lead agency should be the Oneida County Land Conservation Department and the County UW-Extension. Oneida County will be the only directly responsible jurisdiction.

Project Cost:
Covered by the UW Extension and Farm Service Agency annual budget

Project Timetable:
Ongoing

Action:
The County should inform farmers on the advantages/disadvantages of crop insurance to preserve economic stability for farmers during a drought.

Participating Jurisdictions:
Lead agencies will be Oneida County UW-Extension with Farm Service Agency (FSA). Oneida County will be the only directly responsible jurisdiction.

Project Cost:
Covered by the UW Extension and Farm Service Agency annual budget

Project Timetable:
Ongoing

Hazard: Forest Fires and Wildfires

Goal:
Protect the safety and property of residents from Forest and Wildfires.

Action:
The County and Department of Natural Resources (DNR) should continue to make outreach efforts to homeowners on protecting their homes and structures from wildfires. Since Oneida County is mostly rural with may industrial woodland parcels, emphasis should be placed on construction and establishing defensible areas around structures. Roofs and exterior siding should be made of ignition-resistant materials. At least 30 feet should be left between homes and surrounding combustible vegetation. Outreach efforts can exist in the form of web sites, local newspaper articles, and pamphlets to homeowners.

Participating Jurisdictions:
The lead agency should be the Oneida County Emergency Management Department along with the Wisconsin Department of Natural Resources.

Project Cost:
Costs vary.

Project Timetable:
Ongoing.

Action:
Local fire departments should provide and receive training for fighting forest fires and wildfires.

Participating Jurisdictions:
Lead agency should be the Oneida County Emergency Management Department and the municipal fire departments serving Oneida County.

Project Cost:
Covered under Municipal Fire /EMS/ First Responder budgets, HazMat related training can be funded through Wisconsin Emergency Management

Project Timetable:
Ongoing.

Action:
The County and Department of Natural Resources (DNR) should identify and map fire zones throughout the County. These maps should be disturbed to the local fire departments.

Participating Jurisdictions:
The lead agency should be Wisconsin Department of Natural Resources (DNR) with assistance from the Oneida County Land Information Office, and Emergency Management.

Project Cost:
Approximately $12,500.00

Project Timetable:
Completed date if grants are available September 2005

Hazard: Hazardous Material Incidents

Goal:
Protect people and natural resources from adverse affects of hazardous material incidents.

Action
The County should continue to support a Level B Emergency Response Team to respond to hazardous spill situations. Several factors support this such as the density of traffic carrying hazardous materials over the major transportation routes of state and federal highways 17, 32, 45, and 51, the pipeline that delivers petroleum through 31 miles of the County, and a railway that crosses along several communities. Maintaining the Level B Team provides more immediate response to incidents that require a Hazardous Material Team response.

Participating Jurisdictions:
Lead agency should be the Oneida County Emergency Management Department along with the Oneida County HazMat Team, and the Local Emergency Planning Committee. Other Participating jurisdictions should include the municipal volunteer fire departments that have fire department members on the Oneida County HazMat Team.

Project Cost:
$18,400 budgeted annually through the Emergency Management Department; utilize the State of Wisconsin Computer HazMat Equipment Grant

Project Timetable:
Ongoing

Action
The County should prevent or reduce hazardous material exposure by separation and buffering between industrial areas and other land uses. Industrial areas should be located away from schools, nursing homes, hospitals, and other facilities with large and vulnerable populations.

Participating Jurisdictions:
Lead agency should be the Oneida County Planning and Zoning Department. Participating agencies should include all municipal governments located in Oneida County.

Project Cost:
Covered by the Planning and Zoning Department annual budget

Project Timetable:
Ongoing

Identified Municipal Mitigation Projects

The following municipal mitigation projects were identified through the Pre-Disaster Mitigation planning process. These projects are not inclusive of all projects that may be identified at a later date or after a Presidential Disaster Declaration.

Table 23	Municipal Mitigation Projects	
Municipality	**Project Description**	**Estimated Cost**
Crescent	In the event the Fire Department was destroyed, the structure should be reconstructed out of cement instead of metal.	$338,577 Insured replacement Value, reconstruction in cement would cost additional.
	In the event the Town Hall was destroyed, the structure should be reconstructed out of cement instead of wood	$615,300 Insured replacement Value, reconstruction in cement would cost additional.
	Approximately ¼ to ½ mile of South River Road near Hwy 8 has the potential to washout. This section of road should be repaired to not be a washout concern	$53,873 Price based on town road reconstruction estimate from damage assessment Information. (update 5-9-02) Pitlick and Wick Inc.
	Fire Tower Road approximately 1 mile west of the intersection with Crescent Road	To be Determined
Lake Tomahawk	Generator will be installed in the spring –summer of 2004 at the Lake Tomahawk Community Building	$20,110
	Lake Tomahawk established a NOAA Weather Radio Program that allows NOAA Weather Radios to be distributed to members of the community. This is an on-going program	$3,000
	Fire Department is considering conducting a Public Education and Awareness Program in the summer of 2004	To be Determined
Newbold	Clearing of trees near the road right of ways. This will prevent impassibility during ice and windstorms.	To Be Determined
	During road reconstruction lifting areas of existing roads that are low lying and susceptible to flooding or road damage.	To Be Determined

Table 24 – Summary of Mitigation Strategies					
Hazard Type	**Mitigation Measures**	**Project Cost**	**Responsible Management**	**Project Timetable**	**Comments**
All Hazards	Continue to promote the increase use of National Oceanic and Atmospheric Administration (NOAA) weather radios	Covered by radio sales	EM Dept.	On-going	Oneida County Emergency Management promotes and sells NOAA weather radios.
	Continue to add/update Emergency Management Department link off their existing County web page	Covered by Dept. annual budget	EM Dept.	On-going	
Severe Thunder Storms	Promote the planting of windbreaks to protect farmsteads, buildings & open fields from high winds	Costs Vary	LCD and NRCS	On-going	Utilize a number of different sources for cost-sharing
	Review local building codes to improve structures ability to withstand greater wind velocities	Covered by Dept. annual budget	P&Z Dept.	2004	
	Promote NOAA Weather Radios	Covered by radio sales	EM Dept.	On-Going	Oneida County Emergency Management promotes and sells NOAA weather radios.
	Continued training for Law Enforcement, Fire, EMS, First Responder, and the public in the identification of dangerous weather formations	Covered by the National Weather Service	EM Dept.	Annually	National Weather Service Storm Spotter Class.
Tornados	Identification of buildings that could be utilized for tornado shelters.	Covered by Dept. annual budget	EM Dept.	On-going	
	Identify and construct tornado shelters in area where deficient	Costs Vary	EM Dept.	On-going	Utilize the Dept. of Commerce's CDBG for funding assistance
	Require and promote construction standards and techniques	Covered by Dept. annual budget	P&Z Dept.	2004	
	Encourage builders and owners of manufactured and mobile homes to use tie-downs with ground anchors.	Covered by Dept. annual budget	P&Z Dept.	2004	
	Promote NOAA Weather Radios	Covered by radio sales	EM Dept.	On-Going	Oneida County Emergency Management promotes and sells NOAA weather radios.
	Continued training for Law Enforcement, Fire, EMS, First Responder, and the public in the identification of dangerous weather formations	Covered by the National Weather Service	EM Dept.	Annually	National Weather Service Storm Spotter Class.
Flooding	Incorporate floodplain management in comprehensive planning.	Covered by Dept. annual budget	P&Z Dept.	2006	
	Update aerial photography used by the County Land Information Department GIS County coverage	Unknown at this time	LI Dept.	2005	

	Utilize grants through the Dept. of Transportation to repair minor flood damage to roadways	Wis. Dept. of Transportation Budget	DOT / Municipalities	Ongoing	Wisconsin Dept. of Transportation Flood Damage Program
Dam Failure	Develop a dam break analysis and Emergency Action Plan for one high risk dam and two significant risk dams	Cost to be determined	Dam Owners or LCD	2005	Possible FEMA PDM grant for this project.
Winter Storms	Encourage the development of snow fences	Costs vary	HWY Dept. and LCD Dept.	On-going	As grants become available
	Promote winter awareness, including home and travel safety measures	Covered by Dept. annual budget	EM Dept.	On-going	
Drought	Encourage farmers that irrigate to use the Wisconsin Irrigation Scheduling Program (WISP)	Covered by Dept. annual budget	UW-EXT. LCD Dept.	2004	
	County should be prepared how to inform farmers during times of drought	Covered by Dept. annual budget	UW-EXT.	On-going	
	Inform farmers on purchasing crop insurance	Covered by Dept. annual budget	UW-EXT. Dept. FSA	On-going	
Forest Fires and Wildfires	Provide outreach efforts to homeowners on protecting homes and structures from wildfire	Costs Vary	EM Dept. Wis. DNR	On-going	
	Provide ample training for volunteer fire fighters for larger fires	Covered under Dept. budgets	Local Fire Dept. / Nicolet College	On-going	HazMat related trainings may be funded through Wisconsin Emergency Management.
	Identify and Map Fire Zones	Mitigation Grants	Wis. DNR LI Dept. EM Dept.	2005	Completion of the project depends on the availability of Mitigation grants
Hazardous Materials	Continue support for the Level B Emergency Response Team to respond to hazardous spill situations	$18,400.00	EM Dept.	2004	Utilize the State Computer HazMat Grant $10,000.
	Prevent or reduce hazmat exposure by separation & buffering between industrial and other land uses	Covered by Dept. annual budget	P&Z Dept.	2004	

EM Dept.= County Emergency Management Department
FSA = Federal Farm Service Agency
LCD = County Land Conservation Department
P&Z Dept. = County Planning and Zoning Department
LI Dept. = Land Information Department

Part V of the Oneida County All-Hazard Mitigation Plan describes the plan adoption, implementation, and evaluation and maintenance.

Plan Adoption

The adoption of the Oneida County All-Hazard Mitigation Plan lends itself to serve as a guiding document for all local government officials. It also certifies to program and grant administrators from FEMA and WEM that the plan's recommendations have been properly considered and approved by the governing authority and the jurisdiction's citizens. Finally, it helps to ensure the continuity of mitigation programs and policies over time because elected officials, staff, and other community decision makers can refer to the official document when making decisions about the community's future.

Before adoption of the Plan by the incorporated areas, the plan must be sent to the state to verify that all DMA2K requirements are met. Once a draft of the plan has been completed, it is submitted to the State Hazard Mitigation Officer (SHMO) at the state level at Wisconsin Emergency Management (WEM). Previous drafts of the plan have already been reviewed prior to this submittal. The SHMO will determine if the plan meets DMA2K and/or other state program requirements. Upon approval of the draft by WEM, the SHMO is responsible for showing the plan to the FEMA Region V Office for review.

After review and approval by FEMA, the plan must be formally adopted by Oneida County and its incorporated areas (County, City and Villages) by resolution. Incorporated communities that do not adopt the plan cannot apply for mitigation grant funds unless they opt to prepare, adopt, and submit their own plan. According to FEMA Region V, unincorporated areas (towns) do not have to adopt the plan. Adoption of the plan gives the jurisdiction legal authority to enact ordinances, polices, or programs to reduce hazard losses and implement other mitigation actions. Jurisdictions that adopt an All Hazards Mitigation Plan qualify for mitigation funding after a disaster declaration. Resolutions of adoption are contained in Appendix B.

Plan Implementation

Administrative Responsibility

Once the plan has been approved, stakeholders should be informed. The County Emergency Management Director should distribute copies to the stakeholders. The County should make the plan available to the public by linking the plan on their web site.

During implementation of the plan, the County Emergency Management Director and the Local Emergency Planning Committee should take the role as overseer.

As the developers of the plan, the director and committee should monitor its progress.

Along with monitoring the progress of the action projects, the Director and Committee should also work to secure funding to implement the plan. State and federal agencies, nonprofit organizations, and foundations continually make grants available. Emergency Management should research grant opportunities to determine eligibility for the County and its local units of government.

When implementing this plan, the Emergency Management Director and the Local Emergency Planning Committee should consider innovative ways to involve active participation from nonprofit organizations, businesses, and citizens to implement the plan. The relationship between these groups will result in greater exposure of the plan and provide greater probability of implementation of the action projects listed.

The role of department administrators, elected officials, local administrators are to ensure that adopted actions from Part IV are considered into their budgets. It is understood that projects may not be carried out as they are scheduled in Part IV due to budget constraints. However, since many of these action projects are considered an investment in safeguarding the public's health, safety, and property, they should be carefully considered as a priority. There is also the use of fees, taxes, bonds, and loans to finance projects if there is proper state enabling legislation, local authority, and enough political will.

Coordination with Comprehensive Plans

As Oneida County and its local units develop their comprehensive plans, incorporation of the All-Hazards Mitigation Plan is highly recommended. Wisconsin comprehensive planning law includes a detailed description of nine elements. The following concepts should be considered when incorporating the All-Hazard Mitigation Plan into the nine elements of the County and local comprehensive plans.

- *Issues and Opportunities Element*- a summary of major hazards local government is vulnerable to, and what is proposed to be done to mitigate future losses from the hazards
- *Housing Element*- an inventory of the properties that are in the floodplain boundaries, the location of mobile homes, recommendation on building codes, shelter opportunities, and survey of homeowners that may be interested in a voluntary buyout and relocation program.
- *Transportation Element*- identifies any transportation routes or facilities that are more at risk during flooding, winter storms, or hazardous material spills.
- *Agricultural, Natural Resources, and Cultural Resources Element*- identify the floodplains and agricultural area that are at risk to hazardous events.

Incorporate recommendations on how to mitigate future losses to agricultural areas.

- *Economic Development Element*- describe the impact past hazards have had on County and municipal business
- *Intergovernmental Cooperation Element*- identify intergovernmental police, fire, and rescue service sharing agreements that are in effect, or which may merit further investigation, consider cost-sharing and resource pooling on government services and facilities.
- *Land Use Element*- describe how flooding has impacted land uses and what is being done to mitigate negative land use impacts from flooding; map and identify hazard areas such as floodplains, hazardous materials area, and soils with limitations.
- *Implementation Element*- have action plans from this plan implemented into comprehensive plans.

Promote Success of Identified Projects

Upon implementing a project covered by this plan, it is important to promote the accomplishment to the stakeholders and to the communities. This will help inform people that the plan is being implemented and is effective.

Plan Evaluation and Maintenance

Planning is an ongoing process. Because of this, this document should grow and adapt in order to keep pace with growth and change of the County and its local jurisdictions. DMA2K requires that the local plans be evaluated and updated at least every five years to remain eligible for assistance.

The Emergency Management Director should evaluate incoming information in the plan and prepare for the revisions. It is recommended that the Local Emergency Planning Committee discuss evaluation and revision to the plan one year from its adoption month.

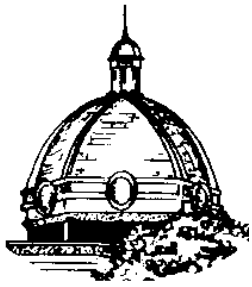
The plan should be evaluated and revised following disasters, to determine if the recommended actions are appropriate given the impact of the event. The Risk Assessment (Part III) should be revised to see if any changes are necessary based on the pattern of disaster damages. The Local Emergency Planning Committee must approve all additions and updates to the plan.

The Local Emergency Planning Committee (LEPC) should keep all stakeholders and the public in the County informed of the progress of the projects. When looking for involvement, a survey or open comment meeting should be conducted every five years.

This page is blank intentionally

APPENDIX

Appendix A – Local Unit Survey



ONEIDA COUNTY
EMERGENCY MANAGEMENT

2000 East Winnebago Street
Rhinelander, WI 54501
Phone (715) 361-5167
Fax (715) 361-5223

E-mail: kkortenhof@co.oneida.wi.us

Director: Kenneth S. Kortenhof
Program Assistant: Dawn Robinson

May 5, 2004

Larry Hendrickson
9368 Rocky Run Road
Harshaw, WI. 54529

Dear Larry:

On October 30, 2000 the U.S. Congress signed into law the Disaster Mitigation Act of 2000. As a result local governments are required to develop a Hazard Mitigation Plan to remain eligible for mitigation funds following a disaster. Oneida County Emergency Management is developing a Countywide Mitigation Plan that will meet the requirements of this Act.

Please take time to fill out the following survey and return it to the Oneida County Emergency Management Department by **June 30, 2004**. Surveys can be mailed to:

Oneida County Emergency Management
2000 East Winnebago Street
Rhinelander, WI. 54501

On Monday June 21, 2004 at 7:30pm Oneida County Emergency Management will hold a public informational meeting regarding the plan. The meeting will be at the Law Enforcement Center, Community Room, located at 2000 East Winnebago Street in the City of Rhinelander.

If you have any questions regarding the information requested please feel free to contact me at 361-5167, I will also be available to assist after the informational meeting on June 21.

Sincerely,

Kenneth S. Kortenhof
Oneida County Emergency Management Director

Appendix A – Local Unit Survey

ONEIDA COUNTY PRE-DISASTER MITIGATION PLAN
TOWN GOVERNMENT INFORMATION REQUEST FORM May 2004

1. Please use the town map provided to identify critical facilities and infrastructure and other at risk sites within your town. Included is a that sheet a listing to work from but feel free to include other sites you feel are important.

2. Please provide an estimate of the value of your major public facilities. If possible please send us a copy of your statement of values from the State of Wisconsin Local Government Property Insurance Fund or your insurance carrier or similar form. _____

3. Please identify any disaster mitigation activities your town may be planning to implement or might want to consider in the future. Enclosed is a list of mitigation ideas from FEMA that can be used as a reference:_____

4. Who can we contact for additional information on your town if necessary? _____

Please send information to: Ken Kortenhof, Emergency Management Director
Oneida County Law Enforcement Center
2000 East Winnebago Street
Rhinelander, WI 54501

Appendix B – Resolution of Plan Adoption

RESOLUTION #

Resolution offered by Supervisors of the Emergency Management Committee.

Resolved by the Board of Supervisors of Oneida County, Wisconsin:

WHEREAS, Oneida County recognizes the threat that natural hazards pose to people and property; and

WHEREAS, under taking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save tax dollars; and

WHEREAS, an adopted all hazards mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, Oneida County participated jointly in the planning process with the other units of government within the County to prepare an All Hazards Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED: that the Oneida County Board of Supervisors, hereby adopts the Oneida County All Hazards Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED: that the Oneida County Emergency Management Department will submit, on behalf of the participating municipalities, the adopted All Hazards Mitigation Plan to Wisconsin Emergency Management and Federal Emergency Management Agency officials for fine review and approval.

Approved by the Emergency Management Committee this_____ day_____ of 2004.

Vote Required: Majority = _____ 2/3 Majority = _____ ¾ Majority = _____

The County Board has the legal authority to adopt: Yes _____ No _____ as reviewed by the Corporation Counsel, _____, Date: _____

Offered and passage moved by: _____
Supervisor

_____
Supervisor

_____
Supervisor

_____
Supervisor

Appendix B – Resolution of Plan Adoption

_____
Supervisor

Seconded by: _____

_____ Ayes

_____ Nays

_____ Absent

_____Abstain

_____ Adopted

by the County Board of Supervisors this day of 2003.

_____Defeated

_____

Robert Bruso, Clerk Andrew Smith, County Board Chair

Appendix B – Resolution of Plan Adoption

RESOLUTION #_____

ADOPTING THE ONEIDA COUNTY ALL HAZARDS MITIGATION PLAN

WHEREAS, the City of Rhinelander recognizes the threat that natural hazards pose to people and property; and

WHEREAS, under taking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save tax payer dollars; and

WHEREAS,, an adopted all hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, City of Rhinelander participated jointly in the planning process with Oneida County and other local units of government within the County to prepare an All Hazards Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the City Counsel of the City of Rhinelander, hereby adopts the Oneida County All Hazards Mitigation Plans as an official plan; and

BE IT FURTHER RESOLVED, that the Oneida County Emergency Management Department will submit, on behalf of the City of Rhinelander, the adopted All Hazards Mitigation Plan to Wisconsin Emergency Management and Federal Emergency Management Agency officials for final review and approval.

Passed:_____

_____

Certifying Official

Appendix B – Resolution of Plan Adoption

RESOLUTION #_____

ADOPTING THE ONEIDA COUNTY ALL HAZARDS MITIGATION PLAN

WHEREAS, the Town of _____ recognizes the threat that natural hazards pose to people and property; and

WHEREAS, under taking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save tax payer dollars; and

WHEREAS,, an adopted all hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, Town of _____ participated jointly in the planning process with Oneida County and other local units of government within the County to prepare an All Hazards Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the Town Board of the Town of _____, hereby adopts the Oneida County All Hazards Mitigation Plans as an official plan; and

BE IT FURTHER RESOLVED, that the Oneida County Emergency Management Department will submit, on behalf of the Town of _____, the adopted All Hazards Mitigation Plan to Wisconsin Emergency Management and Federal Emergency Management Agency officials for final review and approval.

Passed:_____

_____
Certifying Official

Appendix C – Submitted Adoption Resolutions

Submitted Resolutions	
Municipality	Date of Adoption
Oneida County	12-14-04
Town of Cassian	02-01-05
Town of Crescent	02-05-05
Town of Enterprise	
Town of Hazelhurst	01-11-05
Town of Lake Tomahawk	01-12-05
Town of Little Rice	01-11-05
Town of Lynn	01-11-05
Town of Minocqua	01-04-05
Town of Monico	
Town of Newbold	02-24-05
Town of Nokomis	
Town of Pelican	08-08-05
Town of Piehl	01-03-05
Town of Pine Lake	01-19-05
Town of Schoepke	
Town of Stella	01-03-05
Town of Sugar Camp	05-16-05
Town of Three Lakes	
Town of Woodboro	01-11-05
Town of Woodruff	01-25-05
City of Rhinelander	01-10-05

The municipalities without a date listed for adoption indicates the municipality did not adopt the plan.